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THE EARLY DEFINITE TREATMENT OF STRABISMUS.*

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The treatment of strabismus in the young child as practiced by the average ophthalmologist at the present time has not materially advanced from that recommended by Javal, one-third of a century ago. Javal corrected the error of refraction with glasses, used atropine in the good eye, excluded entirely for a time the good eye in selected cases to develop the vision in the deviating eye, used the stereoscope to bring about fusion, where this was possible without operating, and in those cases in whom the deviation was too great, he recommended operation, early operation, to set the eyes sufficiently straight to use the stereoscope. With reference to operating, he says:†

"It is a mistake to believe that operation gives better results at a more advanced age. The sooner it is done, the greater are the chances that it will suffice."

I might say this is still in advance of what is often practiced at present. Ophthalmology in general has made many wonderful strides during that period. In fact, it has broken away from its narrow confines, whose therapy was a few local drops and a pair of glasses, and has become one of the chief, if not the chief, diagnostic avenue to general diseases. No physical examination today is complete without a fundus examination. Fundus lesions thirty years ago were considered either syphilitic, albuminuric, or idiopathic, and were treated on what was known as the "Expectant plan"; but today fundus lesions call forth the skill of various specialists and various laboratory tests, until the source of the infections has been found.

This wonderful transformation has not come to the relief of the squinting child. In fact he is too often doomed to the "Expectant plan" of treatment, much to his detriment. This "Expectant plan" is but hopeful indifference and is not worthy of present day medicine.

When a cross-eyed child is brought to an ophthalmologist, he is entitled to very serious consideration.

What is the customary treatment? A pair of glasses is ordered. The patient is directed to return in a month, at which time he may or may not get a drop of atropine in his good eye, and he is ordered to return in another month or six weeks. If he happens to fall into the hands of a real live young ophthalmologist, he may get a pad on his good eye for a few hours each day, and atropine may be ordered daily in the good eye to force the use of the deviating one, and a slight effort made at fusion training. This usually goes on for a few weeks or months, and the patient disappears to show up later in another oculist's office, with more squint and more amblyopia, where much the same procedure is again practiced.

Since criticism is of value only when it is constructive criticism, it would be useless for me to make the above comments without indicating a proper remedy. This remedy is comprised in the title of my paper, THE EARLY DEFINITE TREATMENT OF STRABISMUS.

What constitutes an early definite treatment of strabismus? This comprises a most thorough examination to be followed by a systematic line of treatment. The examination should consist of:

1. History of the case;
2. A thorough physical examination which must take into consideration the nervous status;
3. A thorough examination of the media and fundus under atropine;
4. A most careful retinoscopy must be done after prolonged atropinization and the visual acuity noted;

*Read at a meeting of the Section on Ophthalmology and Otolaryngology of the Medical Society of the District of Columbia.

†E. Javal; Manuel du Strabisme. Paris, 1896, p. 158.

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5. Very careful measurement of the degree of deviation under different circumstances, both for near and distant must be made;
6. Determine the degree of fusion;
7. Observe the ocular movements and take the tropometric reading where possible.

The facts obtained from the above data are absolutely essential before we are ready even to begin the treatment of a case of squint, or suggest a prognosis. Many of us are too careless about securing the data and are neglecting these young children by prescribing and represcribing a pair of glasses for our squint case to no avail. We have been entirely too long deluded by the GLASS CURE for strabismus. If the properly fitted glass does not cure a case of squint, or at least does not perceptibly reduce the degree of deviation in a few months, it will never do it. Bishop Harman* says:

"If the constant use of glasses that correct any error or refraction does not effect a rectification within a month, we may conclude that the glasses will not correct the squint. Any time allowed to elapse between this conclusion and operation, except so much as may be employed in attempting to regain the sight of the squinting eye, may be considered lost time."

We have listened too long to the song of this glass siren. This is partly due to the fact that the public has been wrongly imbued with this idea, due to the teachings of both the physician and the glass vendor. This erroneous idea should be corrected.

SYSTEMATIC TREATMENT. This consists in the first place of an intelligent evaluation of our findings from the above thorough examination.

Where there is gross pathology, as corneal scars, congenital cataracts, ocular palsies, fundus lesions, etc., these must be eliminated from the regular functional cases and the particular pathology present will indicate the treatment needed.

It is with functional cases that I am particularly concerned. My method of treatment is about as follows:

The first step is to bring up the visual acuity in each eye to at least 6/9, as the greater the visual acuity, the more hopeful we may be of curing the squint. The visual acuity is brought up by prescribing the full correction of the refraction, to be placed on the child at once before the atropine used in obtaining the retinoscopy has worn off. The atropine is discontinued and the patient is told to return in ten days. The condition of the eyes is then carefully observed, the visual acuity of each eye is carefully recorded, and the degree of deviation noted. If one eye squints and the vision is still poor, say as low as 6/60, the good eye is occluded for five or six days, at the expiration of which time, the child reports again for an examination. Usually, in functional squint, the visual acuity will be markedly improved. This occlusion, or padding of the good eye, is kept up for several series of five days until the use of atropine in the straight eye will cause the use of the previously deviating one. When this occurs there is no further need for padding. Partial time padding as is usually practiced does not so effectually bring up the visual acuity. However, it has a place in certain cases.

If after six weeks of complete occlusion of the good eye, or the use of atropine the visual acuity of the deviating one has not improved, further efforts along this line are not apt to succeed. Where the vision improves, and it usually does so rapidly in patients whose eyes have crossed only a relatively short time, this line of treatment should be continued until the vision of the previously deviating eye is 6/9, or better.

The second step is to create a desire for and establish binocular vision. For binocular vision, and binocular vision only, will keep a pair of eyes straight. As soon as the visual acuity is brought up in those cases which are found to respond to this treatment, some effort should be made toward training the fusion power. There are several apparatuses on the market for this purpose. One of the best is Black's modification of Worth's amblyoscope. The best results are obtained in those cases where a definite exercise can be given for several minutes at a time, two or three sittings a week being given. This must be done by the oculist himself, or a specially trained assistant, and even then the oculist must supervise the work from time to time to see that it is being properly done. In selected cases bar-reading is of much value. This fusion training, Worth points out, is not worth the trouble it takes in children above the age of seven or eight years. In other words, if the

*N. Bishop Harman; Trans. Oph. Soc. Un. King., London, 1921, xli, 175.

case is of only short duration and the type of squint periodic, glasses and orthoptic treatment will in all probability relieve it. This shows the absolute importance of seeing these cases early, if a cure is to be effected by means of nonoperative treatment.

The third step, in event of failure to secure binocular vision and straight eyes within six months in all children three years of age or older, is to resort to some operative procedure to set the eyes so nearly straight that it will be possible for the patient to secure binocular vision, which is then trained in the same manner as in the nonoperative treatment. This is possible in nearly every case.

Definite Early Operative Treatment. There are a few things which must have been accomplished before we are justified in operating upon the very young child. It is absolutely essential that the nonoperative treatment has been faithfully tried, and found wanting. The full correction of the error of refraction must have been used constantly for at least six months. The acuity of vision must have been developed by occlusion and atropine until it is 6/9, or better, where possible. The grade of fusion must be determined. And last but not least, the degree of deviation under different conditions and at different times, both at sixty centimeters and six meters must be definitely established by means of definite and accurate measurements.

It stands to reason that in order to establish a definite method of operating, we must first have definite and accurate means of measuring the amount of deviation before we operate.

I have used for years a modification of the Holzer-Priestly Smith tape for determining the degree of deviation at both sixty centimeters and six meters. I have found this method efficient and rapid and it can be used on the youngest child.

The degree of strabismus is measured every twenty days until about five different sets of measurements are taken and a check up on these will give us very valuable information. In fact, it gives us information which can be obtained in no other manner. It tells us whether the strabismus is decreasing, increasing, or remaining stationary. We must not operate upon the very young child without this information. It does more than this, it is our only guide as to *when to operate*, *on whom to operate*, and *how to operate*. In spite of this fact, many cases of squint are operated upon without ever having the degree of deviation measured. How can we ever establish accurate operative procedures with such indifferent preoperative methods? We are not surprised that many dispute the fact that a definite amount of shortening of a muscle will correct a given amount of deviation. We have been entirely too careless in our preoperative measurements.

A number of years ago, I presented definite operative procedures, with accurate measurements and a strabismus brace. These I have modified but slightly, and have now used them in more than five hundred cases, and with increasing confidence. I have described these methods in detail elsewhere.

In all my operative cases the degree of deviation is first definitely established both for near and far, and a slip of paper on which the deviation and the amount of shortening to be done is recorded is sent to the operating room with the child.

The child is etherized, the brace sutures are placed first, then the pull of the internal rectus is taken and recorded. The external muscle is exposed and shortened according to the instructions on the slip of paper. This is done by means of a specially designed caliper, and the amount of actual shortening is measured after the suture is tied. This is also recorded. After the stitches are tied, I put in the brace which relieves the sutures of *all tension*,—an important point in operating upon children, whom it is impossible to keep absolutely quiet, and permits the eye to heal in the position in which it was left at the end of the operation.

I have frequently presented my operative procedures. They have been very gratifying in my hands. I simply present them to you for what they are worth. The one thing which I wish to impress upon you is this: no matter what method you adopt, let it be some definite measured procedure. That is the commendable feature of Dr. Jameson's operation. As long as we use indifferent methods, just so long we will have varying and unsatisfactory results. Some definite measured procedure should be mastered before one is justified in operating on the very young child under ether.

The fourth step is the post-operative treatment. Within two or three weeks after the operation, fusion training is instituted. The

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child is brought to the office and exercises are given as laid down by C. Worth in his excellent monograph on Squint. The exercises as practiced by Wells, of Boston, with his stereo-optometer are especially useful at this stage. In children who are able to read, the bar reading devices are to be recommended. In other words, we teach the child to use both eyes together and endeavor to break his old habit of suppressing the image of one eye. After all, accurate surgical work will enable the child to secure *naturally* binocular vision. Instead of a few minutes' exercise of binocular vision at intervals, they soon have binocular vision the entire day, and then nothing can cause the eyes to deviate short of an ocular paralysis.

These fortunate results are not always obtained by one operation. When fusion training fails after operation, due to the images still being too far apart, other operative procedures are indicated, and should be done after three or four months' delay.

In conclusion, I wish to urge upon you the importance of treating the young child more energetically and assuming the responsibility more frankly. We should teach the parent, the pediatrician, and the general practitioner, that these cases should be seen *early*, at the first glide of the eye. They should also be taught that strabismus is not a trivial affair that the child will outgrow, but a serious condition that often causes the loss of the function of an eye. They should be taught that if glasses do not relieve the condition in a few months, they never will. My message to you is to treat these cases early and methodically, and, when necessary, operate early and definitely.

1408 *L Street, Northwest.*

HEART DISEASE—A PUBLIC HEALTH PROBLEM.*

By F. C. RINKER, M. D., Norfolk, Va.

Mortality statistics indicate an increasing number of deaths, throughout the United States, resulting from heart disease. During the period from 1900 to 1925 there was an increase in the death rate, due to heart disease, from 132 to 185.5 per one hundred thousand population. The mortality rates of the Northwestern Life Insurance Company, from 1858 to 1917, divided into four periods, show the following percentages as the cause of death resulting from heart disease:

1858 to 1885—5.4 per cent.
1886 to 1896—6.4 per cent.
1897 to 1907—7.1 per cent.
1908 to 1917—8.6 per cent.

This is an increase of 59 per cent during the period of 1858 to 1917. During the same period the number of deaths due to circulatory diseases, as a whole, increased from 6.7 per cent to 16.8 per cent, while deaths due to cancer increased only from 3.4 per cent to 7 per cent: nephritis from 3.4 per cent to 9.3 per cent: pneumonia and tuberculosis showing a decrease.

During the year 1926, 1,289,927 deaths occurred in the United States from all causes. Of this number, 294,070 were due to heart disease, or one out of every four. In the State of Virginia, during the same year, there were 4,314 deaths, resulting from cardiac conditions, and in the city of Norfolk 339 out of a total of 1,659 deaths occurred from heart disease.

A few years ago the causes of death ranked as follows: Tuberculosis first, pneumonia second, and heart disease fifth or sixth. Statistics thus show that each heart death now captains the mortality list and other causes have been relegated to the ranks.

Consideration of the above statistics calls forth one possible error, namely, deaths may be charged to heart disease which should not be grouped as such, since heart failure is often the terminal condition in any death. Allowing for this error, however, every evidence, from experience as well as statistical records, points to an increase in deaths due to cardiac affections.

Let us now consider, briefly, some of the etiological factors involved in heart diseases.

Sex Incidence: There appears to be a slight but insignificant difference between the sexes. There are more deaths among males than females during all decades of life, but there is an increase among females during the second, third and ninth decades.

Age Incidence: The actual number of cardiac deaths is small up to 40 years of age in both sexes, colored and white. This incidence rises suddenly between the ages of fifty and sixty and reaches its peak between seventy and ninety.

Racial Incidence: The total number of heart

*Read before the Virginia Public Health Association, January, 1928.

deaths is small among the colored race as compared to the whites. The colored deaths, however, are greater at an earlier age, the maximum peak being during the sixth decade. The cause for this is difficult to explain. Syphilis, being more prevalent among the colored than the white race, may play a part in causing earlier cardio-vascular degeneration among the colored, and thus be the real cause of variation.

Rural and Urban Incidence: There is little data at hand to substantiate this belief, but it is the opinion of the writer that heart diseases are more prevalent among urban residents because of the higher percentage of contagious and acute infectious diseases among city reared children than among those raised in the rural districts. This was partly illustrated by experience gained in the examinations of men for the World War.

Occupation: This seems to play no part in the actual causes of heart affections, but is, of course, an important factor in contributing to deaths among those individuals already suffering from cardiac lesions, the rate being higher among those living active physical lives than among those leading sedentary careful existences.

Social Incidence: Undoubtedly, the rapid way in which we live today, coupled with constantly increasing competition in business and social affairs, may well be reckoned among the causes of increase in heart mortality. More important, however, is the question of marriage and child-bearing among women who are already suffering from cardiac lesions. This brings up a difficult problem. Marriage and pregnancy should really be separated. If marriage relieves the woman of physical and mental strain, if it solves a social problem, if it does not involve pregnancy, then the woman who has some valvular or myocardial condition may be advised to marry. On the other hand, if pregnancy is contemplated, she should be warned against its dangers.

This brings us to a consideration of the specific causes of diseases of the heart:

1. There are certain congenital defects that may lead to death. Over these we have no control.

2. The acute infections certainly rank first among the causes of cardiac affections. Of these conditions, acute rheumatic fever, scarlet fever, measles, sepsis, and tonsillar infections are by far the most serious. These diseases usually occur early in life and are frequently the cause of some endocardial or myocardial lesion which does not make itself known until years later. These cases should be detected at an early date and advised regarding their future lives, thus saving many of them from cardiac incompetency during middle life or old age.

3. There are certain chronic infections, or infections having a tendency to chronicity, which often contribute either directly or indirectly to the increase in heart deaths. Syphilis, and infections existing in the mouth, throat, accessory sinuses of the nose, and genito-urinary tract, are among the most important.

4. Vascular changes, particularly generalized arterio-sclerosis and coronary disease, are rated among the more important causes of heart deaths. These two conditions, however, frequently are in turn caused by one or more of the above mentioned causes of cardiac affections.

Having rehearsed, to a degree, some of the more important etiological causes of heart disease, *what is the Public Health problem?* It seems to me that this problem may be divided, for consideration, as follows:

1. Continued vigilance with regard to the proper supervision of the infectious and contagious diseases, and more serious consideration of some method by which these cases may be required or urged to protect themselves for a considerable period of time after the period of specific treatment. I feel that these cases are frequently released from medical supervision too early.

2. Education of the people at large, through concerted action, by Board of Health centers, schools, medical societies, individual physicians, and through the press, regarding the frequency of heart disease, and how those suffering from this condition should live. The public should also be educated along the lines of chronic foci of infection and the importance of removing such localized menaces.

3. The continued use of prophylactic measures against diseases, and more stringent publications regarding the eradication of syphilis.

4. The importance of yearly routine physical examinations. These examinations should be conducted by the family physician, and not through some far distant center, by sending a specimen of urine to them for their scrutiny.

109 *College Place.*

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CONGENITAL IDIOPATHIC DILATATION OF THE COLON—MEDICAL AND SURGICAL ASPECTS—REPORT OF CASE.*

By

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Congenital Idiopathic Dilatation of the Colon—Medical Aspects—Report of Case.

The name of this disease defines itself. Congenital idiopathic dilatation of the colon is a term used by the French, English and American writers, and is probably the best terminology as it expresses pathogenesis and etiology. The name Hirschsprung's disease is a "tribute to careful observation and description." The name is prevalent in German and Dutch literature.

History.—Historically we ordinarily think of its conception as a clinical entity with the publication of Hirschsprung's contribution in 1886. More than one hundred years ago Parry described the disease, and in 1829 Billard reports a case with autopsy findings. In 1867 it was described by Lewis, of Chicago. In 1886 Hirschsprung described the disease which now bears his name.

Etiology.—It occurs more often in males than females in a ratio of 3:1. Occasionally a familial element enters.

Nothing is known as to the specific cause of the disease. Nearly as many theories have beeen advanced as there are writers on the subject.

As early as 1870 the theory of long mesentery with torsion of the sigmoid was advanced. Hirschsprung advanced the theory of congenital origin.

Colitis becoming chronic, with subsequent distention by gas, with increase in size of the present muscle fibres and the formation of new ones—a true hypertrophy—has been offered.

Increased length of the colon with looping and kinking may explain a few of the cases, but not all.

Other theories advanced, as actual mechanical obstruction of the colon, congenital aplasia of the musculature of the large intestine, contraction of the sphincter ani associated with fibrosis, neuropathic dilatation ,etc., may similarly explain some cases.

Because so many theories have been advanced, it can be deducted that no one etiological factor bears the brunt.

Symptomatology.—These patients have, as a rule, but two main symptoms,—constipation of long duration and distention of the abdomen. Frequently they will go for weeks without a movement. The abdomen is found distended, often to a very marked degree, so much so as to cause flaring out of the lower ribs. The abdominal walls are thin, and vigorous peristalsis may be visualized. The costal angle is very obtuse. The abdomen is tympanitic, liver dullness is eradicated and, many times, large masses of fecal matter are palpable. The lower lobes of the lungs may be atelectatic and breathing is largely costal. Bronchitis and broncho-pneumonia have been noted.

The heart action may be interfered with, producing a weak and irregular pulse and dyspnoea. The genito-urinary system is generally unimpaired, although there have been reported cases of an associated hydronephrosis and distortion of the bladder.

Diagnosis.—Ordinarily the diagnosis of the illness is easy. The history and examination are generally sufficient, while X-ray confirms the picture.

Sometimes there arises the point of differentiating dilatation of the colon from such conditions as tubercular peritonitis, chronic ileus as volvulus, annular carcinoma of the intestines, dysenteric ulcerations of the colon, and ovarian cysts.

Course.—Ordinarily we think of this condition as occurring in childhood and rarely past adolescence. It is, however, present at all ages. Cases are on record as being found in a foetus of 7 months and one case at the age of 78. The summary of the literature shows, however, that it is far more prevalent in infancy, childhood, and adolescence.

Prognosis. — The prognosis is uncertain. The younger the individual, the graver the outlook. I believe with the present status of therapeusis the outlook becomes brighter.

Therapy.—There are many medical procedures proffered for the relief of this condition, but all fail. The use of atropine has been advocated. Meyers reports the reduction in the size of a colon following its use. I feel that

*Read before the George Washington Medical Society, December, 1927.

the consensus of opinion at present is that all cases should be immediately advised surgical interference.

Report of Case.—Male colored boy, 14 years of age, presented himself to the clinic complaining of constipation of very long duration and with distention of the abdomen. The main features of the examination were these: Height 55 inches (normal 59-60 inches); weight 76 pounds, (normal 94 pounds); nutrition poor; lower ribs flared out, with wide sub-costal angle; abdomen markedly distended; mild secondary anemia.

Roentgen findings: Stomach displaced toward the mid-line by gas in the splenic flexure of the colon. The large intestine was enormously dilated, filling almost the entire abdominal cavity. Only the rectal pouch, sigmoid, and the descending colon were filled, two quarts of barium being used to do this much. A further study showed considerable deformity of the stomach due to pressure from the markedly enlarged colon. The stomach emptied a little slower than usual and there was a moderate six hour residue. Dilatation of the colon was from the middle of the transverse colon.

Congenital Idiopathic Dilatation of the Colon—Surgical Aspects

Idiopathatic dilatation of the colon is essentially a surgical disease. The giant colon is an enlargement of the large bowel, mechanical in nature, which fails to react to medical treatment. This congenital defect remains a defect until removed; in fact, it tends to become more dilated as time goes on as a result of fecal impaction. Statistics clearly show that the transverse colon, descending colon and sigmoid is the common sight of dilatation of the large bowel. The entire colon is seldom, if ever, involved.

Before the X-ray had established such definite modes of diagnosis this condition was not so easily recognized. The X-ray now presents the diagnosis clearly, in fact, the colon can be readily outlined and the extent of dilatation can be more or less definitely determined. With the X-ray picture as a background, the surgeon can, in a general way, map out his tentative operative procedure. Final judgment in this matter, however, of necessity must be postponed until the abdomen is opened. It must be made clear to the parents of any child suffering from this condition that a two or three stage operation may be necessary to obtain an ultimate cure. With this understanding there may be no embarrassment as to the proper course to pursue at the time of operation.

Hirschsprung's disease is listed among the less common forms of pathologic lesions encountered in surgery. Because of this fact, the literature shows that the condition has been treated in many ways. Finney was perhaps the first surgeon to describe minutely the surgical approach to this condition. Before he wrote his classical paper upon the subject, there appeared to be no definite outline as to the procedure of choice when this condition was encountered. It is interesting to note that all sorts of surgical procedures have been described in the literature, such as colostomy, colon plication, coloplexy, ileosigmoidostomy, etc.

Today we have at our disposal three possible surgical procedures looking toward the ultimate cure of this distressing condition. In the selected case where the child is in good physical condition, a single stage operation consisting of ileosigmoidostomy and removal of the giant colon may be safely performed. This method is reported by the Mayo Clinic and others. In the presence of a long standing Hirschsprung's disease associated with ill-health, a two or three stage operation may be considered looking toward the safe recovery of the patient. Finney advocates and describes a three stage operation for the cure of the giant colon. His preliminary operation consists in making an artificial anus at a point proximal to the dilated colon. At a second operation he performed an anastomosis of the ascending colon to the sigmoid, and removes the intervening diseased bowel. At a third sitting the colostomy is closed. This operation is safe and sane but has as a drawback soiling which results from the artificial anus. We believe that by the use of the Parker-Kerr aseptic suture that a primary ileosigmoidostomy can be done without the necessity of a colostomy. Because the ileosigmoidostomy can be readily reached the success of the operation can be materially insured by passing a rectal tube from the anus through the anastomosis into the small bowel. At a second stage operation the colon may be

removed in its entirety. This operation provides a safe approach in the presence of a long standing Hirschsprung's disease.

Case Report.—R. E. S., age 14, colored, was referred to me by Dr. John Reed for surgical treatment on June 4, 1926. An X-ray demonstrated the presence of a definite Hirschsprung's disease involving the transverse and descending colon. Two days before admission to the hospital the patient was troubled with abdominal distention, nausea, vomiting and pain. Similiar attacks had been frequent, with the condition apparently getting worse. The general condition of the patient seemed to be fairly good. The abdomen was distended and tympanitic. It was soft and had a somewhat doughy feel. On June 7, 1926, a left rectus incision demonstrated the presence of a marked Hirschsprung's disease with a very large dilated colon, extending from the transverse colon to and including the sigmoid. An ileo-sigmoidostomy was done by the Parker-Kerr aseptic technique.

The convalescence was uneventful and satisfactory in every way. Three weeks after the operation the patient was again operated upon with the idea of removing the diseased colon. A band of adhesions was found constricting the small bowel near the anastomosis, so it was not deemed advisable to do more than release this constriction.

The boy made an uneventful recovery and left the hospital in two weeks. Since this last operation he has been seen on three occasions, and, although he still has his giant colon, the short circuiting operation has apparently given him so much relief that his parents are unwilling to have him undergo further surgery. He is attending school and is entirely free from his former attacks.

CORONARY OCCLUSION, WITH REPORT OF A CASE.

By BLANTON P. SEWARD, M. D., Roanoke, Va.

Not until recent years has the diagnosis of coronary thrombosis been made clinically with any degree of accuracy. The clinical features of coronary obstruction, a persistent pain of varying severity not readily relieved by the nitrites or morphine, with associated changes in the character of the heart sounds, a rapid fall in arterial tension and the development of pericardial friction, have become fairly well known. The distribution of the pain, however, is not the same in all patients. The pain may be felt in the same area as angina pectoris, in which case attention is directed to the heart as the possible cause. On the other hand, the pain may be confined to the upper abdomen and present a difficult diagnostic problem unless one bears this possibility in mind. The case here presented is of interest from this viewpoint.

H. H. H., a white physician, 69 years of age, was seized suddenly with a moderately severe pain in the epigastrium about noon of November 2, 1927. He stated that the pain increased in severity, but was not accompanied with nausea or vomiting. One hour after its onset he felt some discomfort at the apex of the heart in addition to the pain in the epigastrium.

His general condition was good. He had always been active, spending much of his time walking over the hills at his home.

The gastro-intestinal history was negative except for moderate flatulence and mild abdominal pains of short duration during the past year.

Cardio-Respiratory System: In recent months he had dyspnea and palpitation on exertion. At times he felt a sensation of "heaviness" about the heart for a few minutes when walking, but it had never necessitated a rest.

There was nothing significant in the history concerning the genito-urinary tract, or of the organs of special senses.

Past Illnesses: Several years ago he was sick in bed one week with the grippe. He had sore throat frequently, and occasionally mild pains in the joints. In 1921 an emergency appendectomy was performed on him, accompanied with drainage for two weeks.

Physical Examination: One hour after onset of the pain, revealed a well-preserved, elderly man, apparently not suffering acutely.

Teeth: Several of the lower teeth were missing: all of the uppers were artificial.

Tonsils: A purulent secretion was expressed.

Nose: Showed no gross changes.

Cervical Glands: Enlarged.

Lungs: Negative.

Heart: No increase in transverse diameter or in retro-sternal dulness to percussion. The

rate was not increased. The quality of the first sound indicated poor muscle tone; the aortic second sound was accentuated. Blood pressure, 150-110-40; pulse volume fairly good.

Abdomen: Slight tenderness on palpation in the epigastrium; no rigidity of the recti muscles; no cutaneous hyperesthesia.

Dorsal Tenderness: Negative.

Knee Jerks: Diminished.

Rectal: Negative.

The cause of the pain could not be determined at this time. An acute surgical lesion of the upper abdomen and coronary thrombosis were considered. In view of the increasing severity of the pain he was given morphine gr. ¼. The pain was not relieved and he was removed to the hospital.

Three hours later the pain had not abated. The heart sounds were distant, pulse volume small, color ashen gray, and there was a cold perspiration. Temperature 96.8; pulse rate 70.

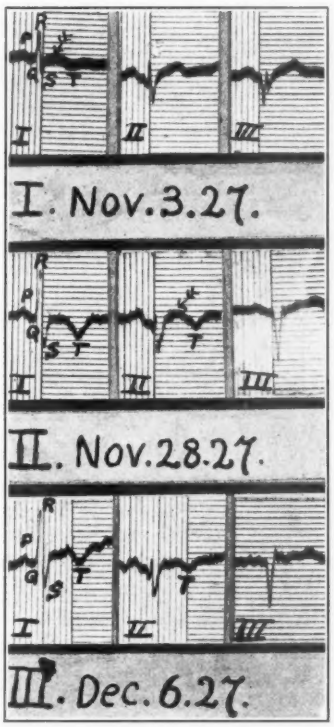
At 5 P. M., he had obtained no relief even though dionine gr. ¼ was given after admission to the hospital. The character of the heart sounds was the same as on earlier examinations; the blood pressure 150-90-60; no special tenderness or rigidity in the abdomen. We believed the pain to be due to coronary occlusion; therefore, efforts were directed towards keeping him comfortable.

The pain, persisting throughout the night and next day, and still confined to the epigastrium, was intensified by deep breathing or turning to the left side. At the same time he had a slight lower substernal oppression, but there was no dyspnea, palpitation or increased pulse rate. A pericardial friction sound was heard; blood pressure 100-70-30. Eye grounds were negative; temperature 100. The diagnosis of coronary occlusion was confirmed.

Laboratory data obtained during his first day in the hospital gave valuable information: Blood urea 50 mgs. per 100 c.c. of blood; phenolsulphonephthalein excretion 28 per cent in two hours. Urine showed a distinct trace of albumin. Leucocytes 21,000, with 85 per cent neutrophiles and 15 per cent lymphocytes; erythrocytes 4,980,000; hemoglobin 93. Wassermann was negative. A smear from the tonsils showed Vincent's organisms, pus cells and staphylococci.

On the following day the blood pressure was 88-50-38, the lowest recorded reading. The patient was comfortable except for lower substernal oppression which disappeared late in the day. Throughout the remaining period of hospitalization—eleven days,—he was free from pain. There was a gradual improvement in the character of the heart sounds, and the blood pressure increased to 108-74-34. Renal function improved, as evidenced by a reduction in the blood urea to 36 mgs. per 100 c.c. of blood, and an increased excretion of the dye to 36 per cent in two hours.

On November 28 the blood pressure was 138-80-58; the pulse volume and color were



Electrocardiograms.

Fig. I.—Made twenty hours after onset of the pain, shows an upward convexity of the S-T interval in all three leads: inversion of the T-wave in lead I, and notching of the QRS complex in lead III.

Fig. II.—Twenty-six days after the attack, shows the convexity of the S-T interval and a deeply inverted T in leads I and II.

Fig. III.—Thirty-four days after the pain began, shows a less prominent convexity of the S-T interval, but the inversion of T in leads I and II remains practically the same. The levocardiogram—left ventricular predominance—prevails in this figure as well as in figure II.

good. Several specimens of urine obtained during the following week showed pus cells, single and clumped, and calcium oxalate crystals. After consultation with Dr. Joseph F. Geisinger, who massaged the prostate and irrigated the bladder, it was decided to treat the pyuria and oxaluria conservatively.

The patient's progress to December 20, when he was last seen, was good. He regained strength, and had no return of the pain. The quality of the heart sounds was good. The blood pressure 146-90-56.

Comment

The close similarity of the symptoms of coronary occlusion and acute surgical lesions of the upper abdomen is apparent in this case. The differential diagnosis is difficult and can be made only by detailed consideration of the history, age, physical findings and close observation of the patient, particularly of the heart sounds and blood pressure readings. These observations are within the scope of every practitioner.

The electrocardiograph renders valuable assistance in clarifying the diagnosis between this condition in which cardiac injury occurs and a surgical emergency demanding immediate intervention. It may render greater service in cases presenting symptoms of a milder degree than such as are usually ascribed to coronary thrombosis. The value of electrocardiography in suspected cases of coronary occlusion is in demonstrating changes in the ventricular complex of the electrocardiogram occurring coincidently with or soon after the onset of the symptoms.

Electrocardiograms made of patients giving evidences of coronary thrombosis and of animals following experimental obstruction, have been found to present certain features which are now generally associated with thrombosis. Pardee[1] stresses two pecularities in the electrocardiogram, namely, an upward convexity of the S-T interval, and an abnormal T-wave. There doubtless are varying degrees of the convexity and of the inversion of the T-wave, corresponding probably to the location and size of the area of infarction. The T-wave is relatively labile. It is influenced by the position of the normal heart as well as by various lesions in the heart, yet the presence of either one or both of these two electrocardiographical abnormalities in a patient giving clinical evidence of coronary thrombosis is probably due to the focal pathological changes following coronary obstruction.

One will observe that both of these phenomena occur in the electrocardiograms made of the patient here reported. The most striking feature in this electrocardiographic study is the inversion of the T-wave in lead I soon after the occlusion occurred, and, later, a deeper inversion of T in leads I and II, indicating greater cardiac injury than is apparent in the first electrocardiogram. Some investigators lay greater emphasis upon the abnormality of the T-wave as representing an abnormal functional balance during ventricular contraction, due to the area of infarction not entering into contraction to the normal degree at the proper time. This pathological basis probably explains the T negativity in these cases.

In Fig. I, the negativity is not as pronounced, probably corresponding to the stage of ischemia. Figures II and III show a rather deep peaked inversion, which we may infer paralleled further pathological changes in the diseased area. Hamburger, Priest and Bettman,[2] in their experimental work, believed "the inversion is due to an area of infarction in the apical region of the left ventricle", and the size that T may assume varies with the amount of disturbance in the coronary circulation.

It would be interesting to know what the direction of the T-wave would be after complete resolution has taken place in the area of infarction in the myocardium of our patient. He was not under observation a sufficient length of time for this to be determined. Although he made considerable improvement clinically, the electrocardiographic evidence, on the other hand, shows a more marked change in the electrical potential of the myocardium, as expressed in the deeper inversion of T in Figs. II and III. Smith,[3] in 1918, found "a slow return to the positive or isoelectric form" following ligation of a branch of the left coronary artery. Hamburger, Priest and Bettman[2] found the same tendency. It is conceivable that as collateral circulation becomes established, fibrosis takes place, the factors interfering with the conduction of the impulse wave diminish, and the heart contracts more normally, the T-wave will resume a more normal aspect.

Conclusions

1. A classical case of coronary occlusion is presented, illustrating the importance of distinguishing between cardiac lesions and pathology in the upper abdomen.

2. The electrocardiograph is a valuable aid in the diagnosis. The upward convexity of the S-T interval with an inversion of the T-wave in one or more leads of the electrocardiogram is suggestive evidence in cases of suspected coronary thrombosis.

3. Correlation of a series of electrocardiographical findings with the physical findings will probably aid in the prognosis of coronary thrombosis. The grave import of such a lesion rests more, perhaps, upon the clinical cardiac status than upon the immediate damage produced by the lesion.

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BRACHIAL PLEXUS BLOCK.*

By EDWARD M. HANRAHAN, Jr., M. D., Baltimore, Md.

By an injection of novocain into the brachial plexus, there is produced a complete surgical anesthesia of the whole arm. This useful procedure has been used extensively abroad, but until recently has attracted very little attention in this country. Why this should be so, I am at a loss to explain, unless it is because of a fancied danger to the nerve trunk or the fear of the close proximity of the subclavian vessels.

Reviewing very briefly the regional anatomy, the brachial plexus takes its origin from the fourth, fifth, sixth and seventh cervical and the first thoracic nerves. The large trunks converge downward and laterally, anterior to the scalene muscles and form a trunk which lies very close to the subclavian artery as the latter arches downward and outward over the first rib and beneath the clavicle. More laterally the nerve trunks redistribute themselves in relation to the axillary artery. These structures constitute the land-marks which must be visualized in order properly to introduce the needle in the supraclavicular approach to the plexus. My experience has been limited to this method, as it has been uniformly satisfactory. There are, however, three other approaches, the paravertebral, infraclavicular and the axillary.

The technique which I have used has been based on that described by Labat; and is essentially as follows:

With the patient either lying down or sitting, but in either event, with the shoulder dropped, and the arm close to the side, the mid-point of the clavicle is ascertained between the sternal and the acromial points. One centimeter above this point, one may make an intradermal wheal with novocain, or this spot may be marked with some dye which will be impervious to whatever method of skin disinfection is used. It is advisable that the skin be sterilized beyond both ends of the clavicle as it is sometimes necessary to repalpate the clavicular landmarks.

One should now attempt to visualize the sixth cervical spine, the first rib and the subclavian artery. If the artery can be felt, it may be pressed medially with one finger, away from the neighborhood of the needle. A needle about 4 cm. long, with a fairly blunt bevel, is introduced through the point above the clavicle, backward and medially, in the direction of the sixth clavicle spine. Unless the needle is too sharp, one will feel very definitely its penetration through the deep cervical fascia. The point of the needle is now very close to the plexus, and the patient should be warned not to move quickly if any paresthesia results. The needle is continued in this direction. If paresthesia results, the injection is made without moving the needle. If no paresthesia results, the needle is introduced further and contact is made with the first rib. This is one's assurance that the needle will not penetrate the pleura. The depth of the first rib may be marked on the needle with a small piece of cork or rubber. With this as a guard the plexus is sought for in the hope of obtaining paresthesia. The needle is never levered fanwise, but is slightly withdrawn and reinserted in a fanwise direction. Otherwise, it is conceivable that one may tear the nerves of the plexus. If paresthesia is obtained, 10 c.c. of

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2 per cent novocain in normal salt solution with 15 minims of adrenalin 1—100 is slowly injected. If paresthesia is not obtained, the novocain is deposited beneath the deep cervical fascia and over the first rib, in a fanwise direction. In this event, an additional 5 c.c. of the solution is injected in the direction from which the nerves come. If paresthesia has been obtained, the novocain injection is usually followed by immediate anesthesia of all of the arm below the insertion of the deltoid. If the injection is made without paresthesia, the anesthesia may be as long as thirty minutes in reaching its maximum. It lasts about an hour and a half. One need never be afraid of this amount of novocain—0.2 gms. It is true that smaller amounts of the more concentrated solution are more toxic than the same amount of the drug in more diluted form, but the toxicity depends entirely on the rate of absorption, which in turn may be regulated by the amount of adrenalin used.

The anesthesia so produced is complete for any major operation below the upper third of the humerus. In case of amputations, or open reduction, with much handling of bone, preliminary morphia (gr. 1/6) and hyoscin (gr. 1/300) is advantageous.

I have used this method in forty-seven patients, male and female, whose ages have run from 7 to 82. Of this number, there were thirty-six closed reductions of fractures and dislocations. In thirty-one, perfect anesthesia resulted. Muscular relaxation was as complete as under a deep general anesthesia. One in a seven year old child was unsatisfactory, but another in an eight year old child was good. In one very fat woman the landmarks were very obscure, and there was very little or no anesthesia. In one impacted Colle's fracture in an elderly woman, some pain was felt on breaking up the impaction, which, however, was eliminated by infiltrating novocain about the site of fracture. In two others, the anesthesia, while not perfect, was satisfactory.

There were ten open reductions and amputations and one drainage of a palmar abscess. Nine had perfect anesthesia, while two were satisfactory. If a clean field is available, it is advantageous to make a subcutaneous infiltration of 0.5 per cent novocain about two inches above the contemplated site of incision.

This method of regional anesthesia is apparently ideal for all operations on the upper extremity. I know of no contra-indication, unless it be a very low blood pressure due to shock. Preliminary to spinal anesthesia, when the systolic blood pressure is below 100, I have used ephedrin to avoid an alarming drop, but I have not as yet encountered this contraindication to brachial block. There are many indications, such as for all patients unprepared for general anesthesia, elderly people and others in whom general anesthesia is contra-indicated, and for re-setting unsatisfactory recent reductions.

It has many other advantages: a large percentage of patients otherwise hospitalized are made ambulant. The difficulty of giving general anesthesia in a dark fluoroscopic room is avoided. Furthermore, in dealing with fractures, one has sufficient time for further manipulation, should the X-ray show that the application of plaster has disturbed the fluoroscopic reduction.

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1201 *North Calvert Street.*

THE EXAMINATION OF THE BABY AND SMALL CHILD.*

By C. P. OBENSCHAIN, M. D., New Hope, Va.

This paper is no attempt to educate. All physicians have a method of their own and know how, in varying degrees of efficiency, to examine the baby or small child. However, the summing up of experience of others and the review tabulation and assimilation of the good points will help those of us who are treating these little ones.

Each of us will admit that we have at times overlooked symptoms which had important bearing on the diagnosis and treatment of the sick baby in our care. There can be no fixed rules or standard method of arriving at a diagnosis. Each one must work out his own after using the usual routine.

The parents of the child very often need more treatment in the form of assurance and advice than the baby needs medical attention. The psychological side of the examination cannot be ignored. The best way to keep this

*Read before the Augusta County Medical Association.

in mind is figuratively to place ourselves in the place of the parents. They will do anything, suffer any hardship and spend all they have to save their child—their dearest possession. It is easy to understand how the physician can lose their confidence by being unsympathetic or showing lack of thoroughness in his attention to the diagnostic evidence. On entering the sick room our efforts on behalf of the sick child are keenly observed by the anxious parents and perhaps by a few aunts and other relatives. Tact is here essential. A brilliant diagnosis arrived at by laboratory and other scientific methods which take time will not console or satisfy if the little patient has gotten desperately ill or died in the meantime. An elaborate post-mortem discussion will not be satisfactory to these same parents. Results are demanded, or a tactful explanation that a favorable outcome can not be hoped for. It must be kept in mind that the uninitiated do not understand medical language, and the less of this used the better.

The field of pediatrics is just coming into its own. The general public is beginning to recognize the wide range of its powers. The cities have taken advantage of this already. The rural districts are waking up to its use. This recognition will continue to improve as we grow in knowledge. These pediatricians are adding to the average life of man. They are saving the state and society from the misfit, the cripple, the blind and degenerate. It is up to all physicians to study this portion of general practice as much as possible, both to help our little patients and to know when to call the specialist.

In tabulating the headings for examination, it has been thought best to have four groups. In order of importance, we have history, observation, physical examination, and laboratory.

History.—In nearly every instance the mother will be present at the examination, and where there is intelligence we can get much valuable assistance. It is impossible to describe all questions which may arise. However, parents must be always diligently questioned at first acquaintance. In one family out of four, syphilis may play some part in all ailments. Obviously, these pointed questions cannot be asked the mother, and we must depend on the physical diagnosis or the laboratory. In getting the history, former ailments must be known and what treatment has been given. It is with poor grace, indeed, that a physician can tell the parents of a child that it has diphtheria, when a little effort on our part, if the family has been under our care, could have prevented this. At times the parents will state that they have been taking their child to a specialist, when, on careful inquiry, this specialist (self-styled) turns out to be a quack or charlatan, or worse, those insiduous black-mailers pretending to practice medicine, and living off the reputation built up by honest physicians. In these cases we must be careful to educate. Again, perhaps, old Aunt Mirandy is on hand to volunteer much information, such as that one of her neighbor's children was under the care of a chiropractor for six days and getting along well with diphtheria up until a "regular M. D." was called, when diphtheria antitoxin was immediately given, killing the child the same day. This was said to be an absolute fact, because the chiropractor had told her so. Perhaps old Grandmother Steptoe has arrived with her bottle of snow water, which was caught from the last snow in April, the year before, on the thirteenth, at 10 A. M., guaranteed to cure anything, from hollow horn to liver-grown. This is, of course, a flare-back to pre-historic superstition, which is inbred in us all to a greater or less extent, and which is taken advantage of by the Indian medicine man. This same medicine man can be well called a gentleman when compared with some of our disciples of the modern cults and quacks. At this point, tact is again essential. At times a general clean out of the Job's comforters and would-be advisers is the best policy, especially so if the welfare of the baby is at stake. We cannot afford to compromise when we know we are right.

The history of exposure will often clinch our diagnosis. This exposure to infection will often have been overlooked by those caring for the baby until questioned. Even here we can not jump at conclusions. Many children who are exposed to diseases do not develop the same. It is well to remember that the baby at the breast does not take diseases easily, and that all babies under one year, or practically all, are immune to diphtheria and scarlet fever. In my opinion they are immune to many other diseases, since many of them sur-

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vive the snaggle-tooth kissing of friends and relatives and other misguided idiotic ministrations.

The history is not full until the father is known to be free from hereditary taint or from previous trouble, which it is possible for him to hand down to his off-spring.

Observation.—By simply watching the sick baby for a few minutes we can, after experience, get much help in our diagnosis. Its position while asleep, the character of its cry, the breathing rate and depth, the presence or absence of skin troubles, paleness or ruddiness, state of nutrition, peristaltic waves over abdomen, all and much more must not escape our attention. The character of the bed and clothing is important. Is the little patient almost out of sight in a feather tick with a flannel band around its little body on the last week in July? Has it a poultice of apple-butter or fried onions over its chest? Our diagnosis will often be made (very quietly to ourselves) —"misguided zeal of over-anxious relatives."

In our observation we often must overlap the physical examination. In this we must start at the top of the head and not be finished until every portion of the child's body, external and internal, where possible, has been examined. Of course, this complete procedure is not necessary where the diagnosis is apparent. Nearly all little ones resent this familiarity with their anatomy. It is up to the physician to gain their confidence. It is wonderful how early in life the little fellow gets used to his physician who will take the pains to get his confidence. This small child will scream with fright or anger at the approach of a strange physician, while the same child will suffer any examination by its own physician and even allow some pain to be inflicted. It is doubtful if the doctor who has to fight to get his examination does the child much good at any time.

But few tools are necessary for making of this diagnosis—stethoscope (one that does not require the head to come close to the child), wood tongue depressor, rectal thermometer, ear speculum, and, above all, some method of throwing a light into the throat. Naturally we will use percussion, palpation, auscultation, the refinements of these being left to the individual, as also their necessity in any given case. Our knowledge of the significance of the findings is gained more by experience than by any printed instructions.

If we at this stage have not satisfied ourselves of the diagnosis, or if there is any doubt whatever, we must resort to the laboratory. This can be best done by specialists in bacteriology, blood examination, etc. However, each of us can do a portion of this laboratory work, such as the preliminaries of the urine examination, blood count, and even a smear culture. The equipment is not expensive. It is much consolation to get the report immediately and first hand.

Even after having exhausted all of our known means to arrive at a diagnosis in treating the baby, a small percentage of mistakes will be made. However, we have full control of this, and we can at least have a clear conscience, for the greater number of lives we may help by being accurate and careful in our examinations will many times offset the occasional instance when we must change our opinion.

DYSTOCIA FOLLOWING THE USE OF RADIUM IN THE UTERUS.*

By HOWARD F. KANE, A. B., M. D., F. A. C. S., Washington, D. C.

From the Department of Obstetrics, George Washington University.

A paper on another subject was being prepared for this meeting, but unavoidable circumstances made it impracticable to present it at this time. The sudden change of plans has not allowed sufficient time for the preparation of an elaborate paper, so this will consist merely of three case reports, mention of some important points, and a warning.

Although the effects of radium therapy of the uterus in relation to subsequent labor is a question perhaps foreign to the Section on Internal Medicine, the uses of radium are becoming so numerous that no matter what his field of practice, any physician may have occasion to decide as to the advisability of its employment.

A hasty but fairly comprehensive search of the literature has failed to show any reports of dystocia following the application of radium to the cervix or body of the uterus. That this is a not unlikely result will be shown by the following cases:

*Read by invitation before the Section on Internal Medicine of the Medical Society of the District of Columbia, January 20, 1928.

Case 1.—Mrs. C. H., white, age 32, multipara, seen in consultation with Drs. L. B. Castell and Edmund Horgan March 18, 1924. The patient, 6 months pregnant, was being treated by Dr. Castell for aortic regurgitation. In May, 1920, the appendix, left ovary and right tube had been removed at operation. In February, 1922, following a diagnosis of fibroids, radium had been applied for 24 hours.

For three weeks after this treatment the patient was confined to bed in the hospital suffering from pains in the back and head, due, she says, to the sacral anaesthesia employed for the insertion of the radium.

The result was menorrhagia rather than amenorrhea. Later, periods became normal for four months while taking ovarian extract.

The current pregnancy had been obstetrically uneventful, but the heart condition had grown progressively worse. On March 18, 1924, the membranes ruptured spontaneously and a loop of cord was found to be extruded through the cervix. Dr. Horgan, who had seen the patient in consultation after the radium treatment, was called, and in turn requested that the writer be asked to participate in the consultation. In the expectation that labor would start spontaneously, nothing was done for 24 hours, but, as pains had not begun at the end of that time, it seemed best to deliver the patient.

The cervix was long, indurated, barely admitted a finger-tip and seemed to be absolutely undilatable. In view of the cardiac condition and the fact that the fetus was dead, a laparotomy was deemed inadvisable. Vaginal Cesarean section was selected as the best method of delivery, and was performed with great difficulty. The induration was not confined to the cervix but extended well up into the uterine wall, necessitating long incisions both anteriorly and posteriorly. The surgical recovery was uneventful but the patient was in the hospital for two months suffering from a severe puerperal psychosis.

Case 2. Mrs. W. M., white, age 41, primipara, seen in consultation, October 30, 1925. Menstrual history normal. Last period December 20-23, 1924. Moderate nausea began in February, 1925. On March 29, 1925, examination showed cervical polypi. Pregnancy not considered to be present. On April 5, 1925, radium was inserted. The patient insisted that she was pregnant, and on July 6, 1925, seven months after the cessation of the menses and three months after the radium treatment, she was X-rayed and told that pregnancy was not present. Three weeks later, two physicians told her that they heard fetal heart sounds and that she was seven or eight months pregnant. On October 23, ten months after the end of her last menstrual period, intermittent pains began to occur in the lower abdomen. These pains continued with increasing severity. At the end of four days, the attending physician said that she was pregnant but not more than 8 months. She was given hypodermics at varying intervals until October 30, 1925, but the pains continued. On the night of October 30, the writer was called. At that time the pain was continuous and evidently excruciating. Examination showed an irregular mass, of board-like rigidity, reaching to 7 c.m. above the umbilicus. No fetal heart or movements were heard, but the uterine soufflé was present. Owing to the extreme hardness of the tumor and the irregularity of its outline, the diagnosis made was pregnancy complicated by fibroids and death of the fetus. The cervix was small, long, undilated, and showed no softening.

Laparotomy disclosed a uterus contracted so tightly around the fetus that it conformed to the irregularities of the body. It was these irregularities, simulating nodules, which gave the impression of fibroids when felt through the abdominal wall.

The fetus was macerated and apparently at full term. The placenta and membranes were densely adherent to the uterine wall and were separated with difficulty.

The patient made an uneventful recovery, and had menstruated regularly up to May, 1927.

Case 3.—Mrs. N. A. S., white, age 40, para VI, seen in consultation with Dr. Williman, September 15, 1927.

In 1920 patient had been curetted and radium had been applied for the cure of metrorrhagia.

The present pregnancy had been uneventful and labor had started at about the expected date. After five hours of hard contractions it was found that the cervix was long, hard and thick, with no dilatation. A contraction-ring was felt at the level of the umbilicus, and, as rupture of the uterus seemed impending, a

Cesarean section was done immediately after the consultation.

The lower uterine segment was found to be almost paper-thin, and extended to the contraction-ring at the umbilicus. A live baby, weighing 6 lbs., 9 ozs., was delivered, and sterilization was accomplished by resection of the tubes. The placenta and membranes were densely adherent. Recovery was uneventful.

We have here three cases in which, after the use of radium, the indurated cervix formed an absolutely impassable barrier to the expulsion of the fetus.

Two of the women became pregnant several years after the use of radium, proving that sterilization does not always result.

In the second case, pregnancy was undoubtedly present when the radium was applied, which shows that radium is not always fatal to the fetus.

Two babies were lost and one patient barely escaped a ruptured uterus, which practically always means death to the fetus if not to the mother.

The value of radium in the treatment of many pathological conditions is unquestioned. Unfounded criticism might deprive some patients of its employment as a life-saving measure. When the first case in this series was encountered, it was considered a probable coincidence. The second case strengthened the belief in a possible cause-and-effect relation between radium and dystocia. When three cases had been observed in three and a half years, it seemed only proper to report them to the profession, with the observation that, in view of the severity of the complications which may occur during labor, endangering the lives of both mother and child, the use of radium in the uterus during the child-bearing period is a procedure which entails the gravest responsibility.

1801 *Eye Street, N. W.*

CAUDAL ANESTHESIA IN CYSTOSCOPY.*

By HORATIO N. DORMAN, M. D., Washington, D. C.

The use of the cystoscope has increased in importance until today it is one of the most commonly used diagnostic instruments at our command. To the urologist its function is twofold. First, it serves as a means of establishing an accurate diagnosis in lesions within the urinary tract, as well as differentiating other lesions in structures contiguous to the urinary organs. Second, it is used in the treatment of many lesions, as, for example, pyelitis, ureteral stones and strictures, and bladder tumors.

There are two considerations of paramount importance in the legitimate use of the cystoscope. They concern, first, the patient, and, second, the cystoscopist. The patient is interested only in his personal comfort; the cystoscopist in his ability to make a thorough, careful and accurate examination. As long as our manipulations are painless, the patient's co-operation is assured; but, when the element of pain enters, it becomes increasingly difficult to get just the information desired, due to a lack of complete co-operation on the part of the patient. Hence, the importance of making our examination as nearly painless as possible. This leads us to a consideration of the anesthetics best suited to our use in cystoscopy. Obviously no one method of anesthesia will be suitable for all cases. The temperament of the patient, as well as the type of lesion suspected, helps us to decide upon a suitable anesthetic in each case. Here, as in any surgical procedure, the anesthetic may be general, or local. We have employed general anesthesia in the form of nitrous oxide-oxygen, with or without ether, in a certain small group of cases that we could not successfully handle by local anesthesia of the urethra. Contra-indications to the use of general anesthesia in cystoscopy are too obvious to require discussion here. To point out that the majority of these difficult cases can be successfully handled by the relatively simple method of caudal anesthesia is our object in presenting this paper.

With the introduction of cystoscopy, local anesthesia of the urethra and bladder has been employed in the great majority of cases. For this purpose, solutions of cocain, novocain, alypin, procain, neocain, salacain and many other drugs have been used in the urethra in varying strengths. Lewis uses a tablet of novocain which he deposits in the posterior urethra with equally good results. These applications are easily and quickly made and, in the ordinary, tractable patient, with a comparatively normal urethra and bladder, serve our purpose very well. In the group of cases previously referred to, any local application to the mucosa of the urethra and bladder is

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insufficient to produce adequate anesthesia for cystoscopy. Such conditions as tuberculosis of the bladder, malignancy of the prostate or bladder, acute cystitis or posterior urethritis, contracture of the vesical outlet, Hunner ulcer, and vesical calculi, are conditions which produce a hypersensitiveness of the bladder and posterior urethra which make the passage of an instrument under a local anesthetic very painful. It is in such conditions that caudal anesthesia is particularly applicable. It fulfills our requirements, in that it is quickly and easily given, it produces the desired anesthesia in nearly all cases, it is harmless when properly given, and it can be used in the aged where a general anesthetic could not be given with safety.

Caudal anesthesia, known as caudal, extradural or epidural block, is produced by passing a needle through the sacral hiatus, and into the sacral canal where the anesthetic fluid is deposited.

Historical Sketch. Cathelin, in 1900, was the first to inject the sacral canal. He injected normal saline solution for the relief of certain neuroses of the urinary tract with moderate success. He was able also to produce extensive anesthesia in dogs by injecting three cubic centimeters of a one per cent solution of cocain, but his early attempts to produce anesthesia in the sacral nerves in human beings were unsuccessful.

Stoekel, in 1909, reviewed Cathelin's method and used it successfully in obstetrics and in perineal surgery. He used novocain in his work. One year later, 1910, Lawen and Gros attracted serious attention to the method by their work. By the addition of sodium bicarbonate and adrenalin to the novocain solution they were able to increase materially the degree of the anesthesia. Lawen stated that sacral anesthesia was used routinely for all urethral and perineal operations in the Leipsic Clinic at that time.

Harris, in 1914, was the first American to publish his work on caudal anesthesia. In his paper, "Nerve Blocking," he claims that the perineum, including everything from the sacrum behind to the symphysis in front, can be successfully blocked by injecting the sacral canal.

Following this work, Lewis and Bartels, 1916, reported eighty-five cases in which caudal anesthesia was used. In forty-six out of sixty-eight cystoscopies, excellent analgesia was produced, and ten out of thirteen prostatectomies needed no other anesthetic.

Pickens, in 1916, and Lynch, in 1918, reported very satisfactory results with its use and, in 1920, Labat introduced the method of nerve blocking in the Mayo Clinic. Since that time the method has been taken up by all our larger clinics until now its use has become very general with urologists throughout the country.

Anatomy. A working knowledge of the normal sacrum and its more common abnormalities is essential to one using this method. The sacrum, in adult life, is made up of the bony fusion of the five sacral vertebrae. For our present consideration its most important anatomic features are: the canal, its contents, and its hiatus. The sacral canal is a continuation downward of the spinal canal and is enclosed by the bony walls of the fused segments, except at its lower end where it terminates in the hiatus sacralis. On cross section the canal has the shape of an isosceles triangle with its base anteriorily. The canal decreases in size from above downward. It contains the dural sac and sacral nerves. The sac usually ends at the lower border of the second segment, about six centimeters from the sacral hiatus. From this point on the sacral nerves are extra dural and lie free on the anterior wall of the sacral canal until they pass outward through the foramina. Hence the possibility of anesthetizing these nerve roots without entering the dural sac—the distinction between this method and spinal anesthesia. The anterior branches of these sacral nerves, with which we are chiefly concerned, pass out through the anterior sacral foramina to the pelvis, where they unite to form the sacral plexus. The sacral plexus gives off the pubic nerve which, with its branches, supplies the bladder, prostate, perineum and external genitals. The sacral hiatus, an inverted V-shaped opening in the bony structure at the lower end of the sacrum, is the result of the non-closure of the laminae of the fifth sacral vertebra. It is situated just above the base of the coccyx and is bounded laterally by the sacral cornua and above by the spinous process of the fourth sacral vertebra. The sacral hiatus is rather easily located, in most subjects, by passing the index finger of the left hand from the tip of the coccyx upward until a slight soft depression is felt at the junction of the coccyx and sacrum.

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Technique. There are a few simple rules to follow in order to insure the best results. Preliminary narcosis, recommended by many writers, has not been given in any case in our series. The patient is placed in the prone position with three pillows under the hips. This elevation of the buttocks helps to accentuate the bony landmarks. The injection is performed under aseptic conditions, as for an open operation. The skin over the sacrum and buttocks is cleansed in the usual way and painted with iodine. The hiatus is then located and a wheal is raised over its center, using a small hypodermic needle. The needle is then passed deeply and all the tissues over the sacrococcygeal membrane are thoroughly infiltrated. The importance of this point cannot be over-emphasized. Unless the skin and subcutaneous tissues are thoroughly anesthetized the patient may experience some pain with the passage of the relatively large puncture needle. This pain, coming so early in the procedure, may be sufficient to destroy the none too strong morale which a certain group of patients have for any local anesthetic. The wheal is then gently massaged until the fluid becomes absorbed, restoring the normal landmarks. The injection is made with a ten centimeter steel needle. The needle, with stillette in place, is held with its bevel upward at an angle of about forty-five degrees with the sacrum. It is then withdrawn slightly to free its point, and the hub of the needle is lowered toward the gluteal cleft until it is practically horizontal with the skin over the sacrum. It is then advanced slowly and gently into the sacral canal for a distance of three to five centimeters. The needle should pass easily and without pain. Any obstruction or pain denotes an improper plane of insertion and should be corrected by changing its position by depressing or elevating the shoulder. With the needle in position, the stillette is withdrawn and if no blood or spinal fluid (this latter has never obtained in any of our cases to date) flows out, the aspiration test is made to be doubly sure that no intra-spinal nor intra-venous injection be made. The syringe is then filled with the solution to be used and the injection made very slowly into the sacral canal. Under normal conditions this is accomplished with very slight pressure,—the fluid passing freely into the sacral canal as into an empty cavity or into a vein.

Instruments. It is most important to have proper needles and syringes in order to administer any local anesthetic successfully. We have found the ten c.c. syringe of Labat, as modified by Lundy, with the lock needle device and the eccentric tip, to be entirely satisfactory. One should make sure that the plunger is tight enough to prevent regurgitation and yet loose enough to work easily. The needles should be of the proper size and length and above all things sharp. Rusty or brittle needles should never be inserted into the sacral canal for fear of breaking. Such cases have been reported. This accident is not likely to happen with flexible steel needles in good condition.

Amount and Strength of Solution. This method is still too new to expect anything like standardization of solutions at the present time. Lawen, who was the first to popularize the method, recommended from 20 to 25 c.c. of 2 per cent solution of novocain and epinephrin, with the addition of sodium chloride. Labat and Brenner use 30 c.c. of a 2 per cent solution of novocain with adrenalin. Char gets his best results with 45 c.c. of a 1 per cent solution of novocain with epinephrin and states that less than 30 c.c. has been found ineffective. Lowsley and Morehead use 30 c.c. of a 2 per cent solution of novocain without adrenalin, claiming equally good results and a less toxic solution. Lewis and Bartels claim to increase the efficiency of the novocain-adrenalin solution by adding equal parts of potassium sulphate, and Harris believes the addition of calcium chloride produces the same results. In the experience of Meeker and Scholl (500 cases) no increase in efficiency could be demonstrated by the addition of various salts to the novocain-adrenalin solution.

In our series of cases we have used from 25 to 30 c.c. of a freshly prepared 2 per cent novocain-adrenalin solution in normal salt. This is prepared from a standard tablet on the market in which the novocain and adrenalin are combined. Our results in these cases together with the more recent publications of others, notably Char, Elliott, and Brenner, have convinced us that the best results are to be attained by using a larger quantity of novocain in a weaker solution. Haines says the degree of anesthesia depends upon the amount of solution injected, and not upon its strength. Brenner's work on fluid levels in the spinal canal, verified by Elliott working separately,

proved that 30 c.c. injected into the sacral canal fills the canal only under slight tension. It has been noted (Brenner, Char) in certain cases where enough solution was injected to completely fill the sacral canal and cause slight pressure that a sense of fullness is felt in the sacral region, and that more complete anesthesia has resulted in these cases. With these facts in mind, we have attempted to fill the sacral canal with a 1 per cent novocain-adrenalin solution in our recent cases, not included in this series, and, although it is too soon to draw any general conclusions, we are of the opinion that we are going to get better results than heretofore. Young says he gets his best results with 15 to 20 c.c. of a 3 per cent solution of procain without adrenalin and believes the incidence of reactions to be high with larger quantities of solution. Our results would seem to disprove this.

Onset—Duration. Each sacral nerve as it leaves the dural sac is covered with a continuation of the dura for a variable distance. This covering protects the nerve to a certain extent and makes absorption slower than would otherwise be the case. The time of onset of anesthesia varies in different cases with the amount of solution used and the proximity of deposition to the nerve trunks. Ordinarily from ten to twenty-five minutes should be allowed for complete anesthesia. The ordinary cystoscopic manipulation does not require any great length of time, so we have no accurate knowledge of the duration of the anesthesia. It is believed, however, to be effective for at least two hours. Extensive bladder surgery, fulguration, etc., requiring one and a half hours have been done with perfect analgesia.

Reactions and Contraindications. Labat says that every patient reacts more or less to sacral injections of novocain and adrenalin. The amount of reaction depends upon the strength and amount of solution used, and the rapidity of injection. Rapid pulse and palpitation of the heart are the most common symptoms, sometimes followed by increased respiration and labored breathing. These symptoms begin during the injection and clear up immediately, without treatment, as the injection is stopped. Char reports a case where the injection was followed immediately by alarming symptoms—syncope, respiratory difficulty, and a subjective sense of impending dissolution. He believed the injection had been made into the dura or into a vein. The symptoms subsided in a few minutes. Elliott reports two cases of extreme respiratory paralysis following injection of 40 c.c. of a 2 per cent solution. In one, an obstetrical case, the paralysis came on twenty-five minutes after injection and was believed to be due to delayed venous absorption caused by pressure of the foetal head on the sacral plexus. In the second case paralysis came on immediately, due to injection into the dural sac. These were the only two reactions noted in a series of 600 cases. Scholl, reporting 123 cases of caudal anesthesia at the Mayo Clinic, says, that immediate or late symptoms were rare following injection. Labat, who has probably used this method more extensively than any other anesthetist says he has seen no ill effects with caudal block when the proper technique is followed. We have had no untoward symptoms in any case. Occasionally a patient complains of a peculiar sensation in the sacrum or head, or a sense of numbness in the buttocks or thighs, but these pass away at once and have given us no concern.

The only contra-indication is an abnormal condition or deformity of the sacrum preventing the successful introduction of the needle into the sacral canal.

Case Reports

Since we began using this method we have examined thirty-eight patients under caudal anesthesia. These cases were chosen from private practice and represent thirty-eight out of some four hundred cases cystoscoped. All of these cases were chosen for certain definite reasons. Many had been cystoscoped before, some several times, under local or general anesthesia, and were unwilling to submit to a repetition under a local anesthetic. Some were known to have tuberculosis with contracted bladder. Many had a hypersensitive condition due to malignancy, infection or calculi, making it difficult, and in some cases impossible, to pass a small catheter into the bladder. In all of these cases an anesthetic, other than local, was imperative.

Of these thirty-eight cases, anesthesia was satisfactory in thirty-four or 89.47 per cent. There were four failures, or 10.53 per cent. These results are about the same as reported by Goldstein who had 87.84 per cent successes, Char 96.38 per cent, Mumey 85 per cent, and Lewis 85 per cent. In a recent paper by

Lundy, of the Mayo Clinic, one hundred and one cystoscopies were reported under caudal, with 99 per cent of good or fair anesthesia. This percentage seems about what we may reasonably expect to attain with proper technique and experience.

The accompanying tables show at a glance the examination made, the results obtained and the diagnosis in each case. Briefly there were sixteen cystoscopies, ten pyelographies, eight ureteral catheterizations, and four fulgurations. There were five cases each of tuberculosis and pyelitis; four cases each of vesical tumor, and prostatic obstruction with marked cystitis; three cases of vesical calculus; two cases each of kidney calculus, carcinoma of the prostate, and haematuria (kidney origin). There was one case each of the following: chronic alkaline cystitis, cystitis, prostatic obstruction with cystitis and diverticulum, granular cystitis with diverticulum, deformed pelvis, Hunner ulcer, ulcerative prostatitis, double pelvis and ureter with stone, ulcerative prostatitis. Three cases were negative.

Examinations and Results.	No.	Successes.	Failures.
Cystoscopy	16	13	3
Cystoscopy & Pyelography	10	10	0
Cystoscope & Ureteral Cath.	8	7	1
Fulguration	4	4	0
Totals	38	34	4
Sex			
Males	28	25	3
Females	10	9	1
Totals	38	34	4
Diagnosis			
Tuberculosis	5	5	0
Pyelitis	5	5	0
Vesical Tumor	4	4	0
Prostatic Obstruction with Cystitis	4	3	1
Vesical Calculus	3	2	1
Kidney Calculus	2	2	0
Carcinoma of Prostate	2	1	1
Haematuria (kidney)	2	2	0
Chronic Alkaline Cystitis	1	1	0
Cystitis	1	1	0
Prostatic Obstruction with Diverticulum and Cystitis	1	1	0
Deformed Pelvis	1	1	0
Granular Cystitis with Diverticulum	1	1	0
Hunner Ulcer	1	1	0
Ulcerative Prostatitis	1	1	0
Double Pelvis and Ureters with Stone	1	1	0
Negative	3	2	1
Totals	38	34	4

A brief consideration of our four failures show that in three cases we had difficulty in getting the needle placed. In one case, a rather nervous girl, complaint was made before the needle entered the canal, due, I believe, to a lack of sufficient care in anesthetizing the superficial tissues. In the other two cases, both men of advanced years, a few drops of blood escaped through the needle. This was entirely our fault in adjusting the needle. The fourth case, an intractable man with carcinoma of the prostate, insisted on having gas. We were equally insistent on using caudal, and the injection was made easily. However, when we came to pass the cystoscope, the patient absolutely refused to co-operate and gas was given. It will be seen, then, that three of our failures were due to our inexperience and the fourth to a lack of co-operation on the part of the patient.

An idea of the real value of the method and what can be accomplished with its use in cystoscopy can be gained by citing three typical cases:

Case 1.—Male, 72 years of age. Diagnosis: Prostatic lip and small right lobe with cystitis. Prostatectomy done in Georgia two years ago. Now complaining of marked frequency, day and night. Urination difficult and painful. Urine foul with much pus and infection. Attempts to pass a No. 16 and 18 curved catheter met with failure due to hypersensitiveness of the urethra and obstruction at the vesical neck. A filiform and No. 14 catheter follower was finally passed, but the patient complained bitterly of pain. After a few weeks of local treatment, without improvement, the patient was sent to the Hospital for cystoscopy under caudal anesthesia. Thirty c.c. of a 2 per cent novocain-adrenalin solution was injected. A No. 24 cystoscope was passed, the bladder thoroughly examined and the instrument removed before the patient was aware of what was going on. When asked how he liked it, he replied, "Go as far as you like, boys, I can stand it."

Case 2.—Male, 43 years of age. Diagnosis: Tuberculosis of his only remaining kidney and of the bladder. One kidney was removed nine years before. Now wears a urinal because of incontinence. Bladder capacity about one ounce when in the reclining position; no capacity when on his feet. Bladder urine positive for tubercle bacilli. Patient had been cystoscoped two or three times before elsewhere

and refused to submit to another without a general anesthetic. Caudal anesthesia was administered, as in the previous case. A tight meatus, and stricture of the pendulous urethra, were dilated with sounds, after which the cystoscope was passed easily and a thorough examination made with absolutely no pain.

Case 3.—Male, 82 years of age. Diagnosis: Carcinoma of the prostate. Patient seen in consultation at Naval Hospital. Previous attempts to pass instruments had failed on account of pain. General condition of patient precluded inhalation anesthesia. Caudal anesthesia was given as in the previous cases and cystoscopy was performed with perfect analgesia.

These cases give us an idea of the usefulness of caudal anesthesia and the pleasing results to be had by its employment in certain cases.

Conclusions

1. Caudal anesthesia, because of the ease of administration and effectiveness, is the method of choice in all difficult cystoscopies where local anesthesia is inadequate.

2. Caudal anesthesia, when properly administered, produces no untoward results and there are no complications.

3. A more general use of caudal anesthesia tends to more and better cystoscopies, more relief from suffering on the part of the patient and more joy and satisfaction on the part of the cystoscopist.

4. The technique of caudal anesthesia should be acquired and used by everyone doing cystoscopy.

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208 *Stoneleigh Court.*

THE VALUE OF VITAL CAPACITY ESTIMATIONS IN THE STUDY OF HEART DISEASE.*

By A. B. HODGES, M. D., Norfolk, Va.

In most cases of heart disease dyspnea is the first symptom observed, and the tendency to shortness of breath on exertion bears a close relation to the clinical condition of the patient. As the cardiac reserve begins to decrease, the tendency to dyspnea increases, and *vice versa*, a decreased tendency to dyspnea connotes an increase in the cardiac efficiency. There are a few cases, however, in which palpitation or precordial pain are the early symptoms and dyspnea is negligible or absent, but

*Read before the Norfolk County Medical Society.

this group is small in comparison to the former.

Because of the close relationship between the tendency to dyspnea and the clinical condition of the patient, it would be very valuable if we had some method of accurately determining this tendency instead of relying on such inaccurate data as the statements of the patient, or on graduated exercises, which are impractical in decompensated cardiacs. Such a method we have in the determination of the vital capacity of the lungs.

The total amount of air that can be expired after the greatest possible inspiration is the measure of the vital capacity of the lungs.

Hutchinson, in 1846, was the first to publish a thorough study of the vital capacity of man. He studied about 3,000 people, some healthy, and some suffering from diseases of the lungs and heart, and pointed out that the vital capacity was decreased in patients with heart disease. Little work was done along this line until the World War when interest was revived by Georges Dryer. He used this method in examining applicants for the British Flying Service, and stated that it served as a decisive factor in election to, or rejection from, that service.

The late Dr. Francis Peabody, of Boston, and his associates were the first in this country to investigate the subject. In studying the production of dyspnea in normal persons and in those with heart disease, they observed that cardiacs did not respond to the production of dyspnea in the same way that normals did. The normals increased both the rate and depth of breathing, but the cardiacs increased the rate without increasing the depth to any great extent. This led them to investigate the general subject of the vital capacity of the lungs in heart disease.

Many patients with different types of heart disease and varying degrees of cardiac insufficiency were studied. The vital capacity of the lungs was found to be decreased in the majority of the subjects. An observation of far greater importance, however, was the fact that there was a close relationship between the degree of the decrease in the vital capacity and the degree of the tendency to dyspnea. If the volume of the vital capacity was expressed in terms of the percentage of normal, it was found that the following generalizations were approximately true:—Cardiac patients with a vital capacity of 90 per cent or more of the normal standards have no more tendency to dyspnea than is to be found in a similar group of healthy persons. Cardiac patients with a vital capacity of from 70 to 90 per cent of the normal almost invariably give a history of shortness of breath on moderate exertion, but most of them can lead a satisfactory, although somewhat limited, life. Patients with heart disease who have a vital capacity which is only from 40 to 70 per cent are much more restricted. Practically all become short of breath easily, and few are able to do even the lightest work. They are border-line cases and frequently become acutely decompensated. Those patients with a vital capacity below 40 per cent are acutely decompensated, usually confined to bed, and are often dyspneic even while at complete rest.

McClure and Peabody next undertook a study of the relation between the vital capacity and the clinical condition of the same patient during the course of the patient's illness. They studied twenty-four cases and made frequent notes regarding such signs and symptoms as dyspnea, cyanosis, edema, hydrothorax, congestion of the lungs, enlargement of the liver, heart rate and rhythm, and the urinary output, and made frequent determinations of the vital capacity. It was found that the vital capacity of the lungs in heart disease bears a close relation to the clinical condition of the patient. This is especially the case if the clinical condition is judged by the tendency to dyspnea. It was also shown that an improvement in the functional state of the heart is associated with a rise in the vital capacity, that when the condition of the heart is apparently remaining stationary, changes in the vital capacity are not marked, and that when there is evidence of increasing cardiac insufficiency the vital capacity of the lungs falls. During the past ten years these observations have been made many times by a number of investigators and are now generally considered as quite definitely proven.

It might be thought that vital capacity determinations would be a great aid in differential diagnosis, but such is not the case. A decrease in the vital capacity does not mean that a patient has heart disease, for any condition which interferes with respiratory move-

ments will cause a decrease in the vital capacity, such as emphysema, pulmonary tuberculosis, intrathoracic neoplasms, pneumonia, hydrothorax, pneumo-thorax, and pleurisy. However, the test is of great value in distinguishing between true cardiac weakness and effort syndrome, for the patients with the latter condition complain of weakness, palpitation and dyspnea on exertion. It has been shown by several investigators that the vital capacity is not decreased in effort syndrome.

Why is the vital capacity reduced in heart disease? In advanced cases in which there is pleural effusion and pulmonary edema, it is easy to understand how the movements of the lungs would be interfered with and the vital capacity reduced. In a great many cases, on the other hand, there is apparently no relation between the decrease in the vital capacity and such physical signs. There may, indeed, be a considerable decrease of the vital capacity in patients in whom the examinations of the lungs reveal absolutely nothing. A man with mitral stenosis, for instance, may give a history of dyspnea on walking rapidly or on going up stairs. Examination of his lungs by the usual methods and by the X-ray gives no indication of any pathologic lesion, but his vital capacity is found to be 70 per cent of normal. In such cases it has been suggested that the limitation of the movements of the lungs, which is evident from the decrease in the vital capacity, is due to an increased pressure in the pulmonary circulation with engorgement of the blood vessels and a consequent interference with the elasticity of the lungs, the distended vessels not permitting the lung to expand normally. If this be true, then the determination of the vital capacity gives us important information concerning the condition of the pulmonary circuit.

It is obvious that before any test can render its greatest service reasonably accurate, normal standards must be developed for comparative purposes. Because of wide individual variations, we know that individual standards observed in time of good health are best, but inasmuch as such standards are not available in most cases, one is compelled to resort to theoretical normal standards. Since Hutchinson began his work upon vital lung capacity, several theoretical normal standards have been presented, such as the standing height standard, the body weight standard, the surface area standard, and the chest circumference standard. Without discussing the relative merits and demerits of each method, suffice it to say that perhaps the majority of the workers in this field believe that the standing height standard and the surface area standard are the most satisfactory. In order to simplify the determinations, the tables which have been published by Myers in his little book on the vital capacity of the lungs are recommended.

Any type of spirometer may be used for determining the vital capacity. Those who have a basal metabolism apparatus will find this machine very satisfactory.

Summary

1. In most cases of heart disease the tendency to dyspnea bears a close relation to the clinical condition of the patient.

2. The vital capacity of the lungs is a good index of the tendency to dyspnea in heart disease.

3. There is a close relationship between the degree of the decrease in the vital capacity and the degree of the tendency to dyspnea.

4. The vital capacity varies with the clinical condition of the patient.

Conclusions

The estimation of the vital capacity is a great aid in the management of cardiac cases. It is also useful in distinguishing between true cardiac disease and effort syndrome.

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THE COUNTRY DOCTOR.*

By ESTILL L. CAUDILL, M. D., Elizabethton, Tenn.

Gentlemen of the Ex-Interns' Association of St. Elizabeth's Hospital:

I wish to thank you for the honor conferred upon me, in electing me your President, and I can assure you that I will at all times do the best that I can to promote the interest of this Association.

Since the organization of this Society, I have always looked forward to these meetings with a great deal of pleasure. It is not only a pleasure to meet the old ex-interns of this hospital, and to partake of the wonderful hospitality which is provided by our host, but it is a stimulus to return and see the splendid work being done by Dr. Horsley and his excellent staff. I know that each one of us will take back to our homes new ideas gathered at these meetings, and a determination to do better and more thorough work than we have done in the past.

Since it is the custom for the President to write a paper, I shall say a few words regarding that wonderful character which has so often been referred to, but which is now rapidly becoming extinct, "The Country Doctor."

It has been a grand privilege to have lived in this generation and to have practiced medicine as a country doctor. For thirteen years it has been my lot, and not an unpleasant one, to practice in the small town and country. During this time we have seen the transition from the muddy roads, the horse and saddle bags, to the improved highways and the modern automobile. This change in transportation has been a blessing to the country doctor, for, instead of spending more than half his time in traveling to and from his patients, he now has this extra time which may be spent in recreation or study.

There has also been marked advancement in medicine and surgery during this period. The prevention and treatment of childhood diseases, especially diphtheria, scarlet fever, and the intestinal infections, has greatly reduced the mortality in children.

In this day of specialization, the up-to-date country doctor is the greatest of all specialists. He must have a fundamental knowledge of all the specialties; for to him will be given the opportunity of both seeing and examining the sick patient. He must know how to take care of emergencies, regardless of their nature, and because of his isolation, he cannot consult a specialist at the time when they are often most needed.

It requires more knowledge of human nature, and more experience over a wide field of observation, to make a first-class country doctor than the public can conceive of. He is compelled to treat cases by himself that his city brother would hesitate to take charge of. It is often necessary for the doctor to give an anesthetic and apply forceps without assistance. He must be able to do a tracheotomy or intubation, or else stand by and watch his little patient die from suffocation. There are numerous other cases I could mention which only those who have practiced in the country could appreciate.

The long hours, hard work, and poor compensation are some of the rewards of such

*President's Address delivered before the Fourth Annual Meeting of the Ex-Interns' Association of St. Elizabeth's Hospital, Richmond, Va., October 4, 1927.

a life. The compensation, however, may be of two sorts: first, the material prosperity which enables him to take care of his family: second, the satisfaction that comes from the feeling of usefulness to his country and from the knowledge of its esteem. The best evidence of the usefulness of such men lies in the esteem in which they are held in their communities. There is no place where one is submitted to more merciless scrutiny than in the small towns. There is no place where one is likely to be judged more justly for his work, and these men have always been appraised as of the highest value in their communities.

I wish I were able to write an eulogy on the country doctor and to give a picture of him as he really exists. I quote from the late Vice-President, Thomas R. Marshall, who wrote the following: "I think if service is to be the true mark of greatness in a people, all these other wonders of a wondrous age and state must pale into insignificance beside the service and sacrifice of the country doctor. Who now remembers the conditions under which he sought to minister to bodies and minds diseased? Who now, by any stretch of imagination, can bring to view the awful roads, the unhospitable houses that were called homes, the lack of furnaces, bathrooms, hot water, electricity, gas, mud everywhere, cracks in the houses everywhere, children waking in the morning with their blankets covered with snow, huge fire-places where you roasted on one side and froze on the other? And add to it all a malarial climate. Chills and fever, fever and chills, day in and day out, night in and night out. Storm and sunshine, the country doctor went his rounds."

As we pass along down the lane of life, as the shadows begin to lengthen, we may not all be permitted to live in mansions, but may we have the satisfaction of knowing that we have spent a life of service, and in a small way, have rendered some benefit to mankind.

THE PROGNOSIS AND TREATMENT OF TETANUS—WITH A REPORT OF THREE CASES.*

By R. W. UPCHURCH, M. D., Durham, N. C.

Tetanus is a most fatal disease that causes dread and horror to every physician who has so unfortunately had to treat such a malady. The fact that the prognosis is so unfavorable, and the treatment so variable and uncertain, is the reason we do not meet this calamity when it arises with any degree of certainty or assurance. Before discussing the prognosis and treatment of tetanus, it is best we review its clinical picture.

Tetanus is an acute infectious disease, characterized by tonic spasms of the muscles of the body, caused by absorption by the nervous system of the toxin which is given off by the tetanus bacillus. The bacillus is found in the soil most commonly, and is especially abundant around stables or where manure has been deposited. It grows under ordinary temperatures and anaerobic conditions. The bacillus produces spores of a most resistant type and a toxin, the most virulent of all poisons. The disease usually follows an injury in which the wound has become infected or contaminated with dirt. These wounds are most commonly seen on the extremities. Lacerated, punctured, and suppurative wounds are most readily attacked by the bacillus, due to the anaerobic conditions present.

The average incubation period is from five to twelve days; however, it may be from one to thirty days. The onset of the disease is variable. It may begin with restlessness, giddiness, headache, increased irritability, change in the facial expression, or darting pains in various parts of the body. Soon after this, unmistakable symptoms develop. Difficulty in swallowing and mastication, with stiffness of the jaws, is usually the first thing the patient complains of. This gradually develops into tonic spasms of the muscles in this region, causing the so-called "Sardonic grin". The eyebrows are arched, the eyelids partially closed, and the lips are drawn tightly across the teeth. In some cases the jaw becomes fixed, a condition called "trismus". The stiffness passes on to the neck and the muscles of the abdomen and extremities. Later, these muscles are thrown into tonic spasms by peripheral irritations, such as light, draft, sounds, touch of bed clothing, and swallowing. The muscles of the back are most affected, causing the well-known position of opisthotonos. Clonic spasms develop, affecting the diaphragm and muscles of respiration, causing cyanosis, rapid breathing, flat-

*Read before the Ex-Interns' Association of St. Elizabeth's Hospital, Richmond, Va., at the Fourth Annual Meeting, October 4, 1927.

tened lips, exposed teeth, and a facial expression of pain and agony. These paroxysms become very frequent, as often as every three minutes. Even in between the attacks the patient is not relaxed. The temperature may be normal or as high as 105 or 106 degrees. The course is very rapid, and death may take place during a spasm from heart failure, asphyxia, or exhaustion. The diagnosis is unmistakable with the history of trauma and the gradual development of such marked symptoms.

I am reporting three cases treated by Dr. Foy Roberson and myself, at Watts' Hospital, within the last nine months, before discussing the prognosis of tetanus and its treatment.

Report of Cases

Case 1.—Master R. R., age 12 years, was admitted to Watts' Hospital on November 5th, 1926. Eighteen days prior, his right hand was caught in a corn shucker, amputating all four fingers at the base of the first phalanges. The hand was treated by his family physician and was healing nicely. No prophylactic dose of tetanus antitoxin was given. Four days before admission he complained of pain in his back and jaws. Chewing became difficult and at times his jaws would lock on deglutition. Twenty-four hours before admission he began having muscular spasms of the body, which developed into typical tetanic convulsions, occurring every ten minutes and lasting from thirty to sixty seconds.

On admission, his temperature was 100, pulse 100, and leucocyte count 9,600. His complexion was florid and expression anxious. The pupils were dilated. His jaws and neck were stiff; he had convulsions every few minutes, the body assuming the position of opisthotonos. The right hand was granulating nicely and there was no evidence of infection.

The patient was put in a dark room and given morphine, grs. 1/6, every three hours. Bromides and chloral hydrate were given per rectum. 10,000 units of tetanus antitoxin were given intraspinally and 20,000 units intravenously.

On November 7th, his condition remained about the same. 10,000 units of tetanus antitoxin were given intravenously.

On November 8th, 4,000 units of tetanus antitoxin were given intraspinally and 6,000 units intravenously; his condition seemed slightly improved.

On November 9th, 10,000 units of tetanus antitoxin were given intravenously, 5,000 units intraspinally, and 5,000 units intramuscularly. His condition remained the same.

On November 10th, 5,000 units of tetanus antitoxin were given intravenously. He seemed much improved on this date. He was able to take fluids freely and had very few muscle spasms.

On November 11th, 5,000 units of tetanus antitoxin were given intravenously. His condition became worse. He became more restless and was delirious at times.

On November 12th, he passed into a deep stupor, his pulse became rapid and weak. His temperature rose to 105 degrees. A blood transfusion and glucose intravenously failed to sustain the rapidly failing circulation and he died on November 13th, seven days after admission. The outcome of this case might have been different if an earlier diagnosis had been made and the proper treatment administered sooner.

CASE No. I.

Days in Hospt.	Tetanus Intramuscularly	Antitoxin Intravenously	Antitoxin Intraspinally
1st		20,000	10,000
2nd		10,000	
3rd		6,000	4,000
4th	5,000	10,000	5,000
5th		5,000	
6th		5,000	
7th	Died		
Total	5,000	56,000	19,000

Total Tetanus Antitoxin, 80,000 Units.

Case 2.—Master C. E., age 13 years, was admitted to Watts' Hospital on December 1, 1926, with a compound comminuted fracture of the left tibia. The wound was cleaned, fractured particles of bone removed, and the edges closed around a rubber tissue drain. A plaster cast was applied to the leg and a prophylactic dose of 1,500 units of tetanus antitoxin were given.

On December 13th, a new cast was applied to the leg. The wound was clean and granulating nicely. His temperature and pulse were normal. The patient was convalescing satisfactorily.

On December 15th, two weeks after date of

injury, he complained of stiffness in his jaw and inability to open his mouth wide enough to eat freely.

On December 16th, he complained of soreness in his right arm, pain in his back and stiffness of his neck and jaw. He became very restless and developed typical symptoms of tetanus, already described above. 10,000 units of tetanus antitoxin were given intramuscularly and 10,000 units intraspinally.

On December 17th, 15,000 units of tetanus antitoxin were given intramuscularly. Although the patient was desensitized to the serum, he had a severe reaction. His temperature rose to 105, and pulse to 160.

On December 18th, his condition seemed better; temperature 101, and pulse 90.

On December 19th, his condition remained about the same; however, he was able to take fluids freely.

On December 20th, his temperature was 100 and pulse 90. His condition was improving.

On December 21st, he became more restless and 10,000 units of tetanus antitoxin were given intramuscularly.

On December 22nd, 10,000 units of tetanus antitoxin were given intraspinally. The patient had another reaction, his temperature reaching 104, and pulse 100. Restlessness and rigidity seemed more marked.

Following this date, his condition gradually improved. Within ten days, stiffness of the neck and body rigidity had entirely disappeared. On January 3rd, eighteen days from onset of the disease he was eating soft diet and free from any symptoms of tetanus. However, his temperature was 101, pulse rate 100, and leucocyte count 10,000. This was due to a slight infection in the leg wound, which had not cleared up.

On January 20th, fifty days after admission and thirty-five days after development of tetanus, the patient was discharged as cured. His temperature was 99.2 and pulse 80. Today he is up and walking and appears normal in every way. Apparently, he suffered no ill effects from the disease. This is a rather atypical case, developing after having had a prophylactic dose of tetanus antitoxin, and running an attenuated, but prolonged course.

CASE No. II.

Days in Hospt.	Tetanus Antitoxin Intramuscularly	Intravenously	Intraspinally
1st	10,000		10,000
2nd	15,000		
3rd			
4th			
5th	10,000		
6th			10,000
7th to 35th day, no antitoxin was administered.			
Total	35,000		20,000

Total Tetanus Antitoxin, 55,000 Units.

Case 3.—Master F. D., age 6 years, was admitted to Watts' Hospital on August 11, 1927. He complained of pain and tenderness in the right lower abdominal quadrant, of twelve hours' duration. His temperature was 99, pulse 70, and leucocyte count 10,000. He was very rigid and tender over his appendix. A diagnosis of acute appendicitis was made. A McBurney incision was made and, on opening the peritoneal cavity, free fluid was found. The appendix was acutely inflamed and was removed in the usual way.

On the following day, August 12th, at 4 P. M., his temperature suddenly rose to 103 and pulse to 150. His jaw and neck were rigid and the slightest movement or examination caused stiffening of the body muscles. He became delirious and developed the typical "Sardonic grin" of tetanus. On questioning his mother, it was learned that two weeks before admission he was scratched by a cat on the right arm. The wound was not treated by a physician and no prophylactic dose of tetanus antitoxin was given. The wound became infected and contaminated with dirt several times. On examination a clean fresh scar was found on the right arm in evidence of the injury. A diagnosis of tetanus was made and treatment instituted immediately. Enough bromides and chloral hydrate were given by rectum to exert their physiological effect. Codeine, gr. ¼ hypodermically, was given every four hours, and 500 c.c. of 10 per cent glucose in Ringer's solution were given intravenously to maintain body fluids. 20,000 units of tetanus antitoxin were given intraspinally and 10,000 units intravenously.

On August 13th, his temperature was 104, and pulse 130. Although he was well under the influence of bromides and opiates, he had clonic spasms of the diaphragm and muscles of respiration, causing asphyxiation and tonic spasms of the body muscles, with the position

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of opisthotonos every three minutes. 30,000 units of tetanus antitoxin were given intraspinally, 10,000 units given intravenously, and 10,000 units intramuscularly. 500 c.c. of 10 per cent glucose in Ringer's solution were given intravenously.

On August 14th, his temperature was 104, and pulse 140. The convulsions had diminished in severity and frequency. 30,000 units of tetanus antitoxin were given intraspinally and 10,000 units intravenously. 600 c.c. of 10 per cent glucose in Ringer's solution were given intravenously.

On August 15th, his temperature was 99, pulse 110, and his convulsions were less frequent, coming every 30 to 60 minutes.

On August 16th, his condition seemed improved. He was able to take fluid by mouth and had only a few body spasms.

On August 17th, five days after the development of the disease, he had no convulsions and was able to take soft diet; his temperature was 99, and pulse 90.

On August 29th, seventeen days after the onset of tetanus, the patient was out of bed and eating light diet; his temperature was normal, and pulse 110. He was discharged as cured on September 5, 1927, twenty-four days after admission to the hospital. I have seen the patient several times since this, and he appears to be normal in every respect.

CASE No. III.

Days in Hospt.	Tetanus Antitoxin Intraspinally	Intravenously	Intramuscarly
1st	20,000	10,000	
2nd	30,000	10,000	10,000
3rd	20,000	10,000	
Total	70,000	30,000	10,000

Total Antitoxin, 110,000 Units.

I have reported three cases of tetanus, all different, different in severity, treatment and outcome. To have determined the outcome or method of treatment in the beginning would have been difficult. All cases cannot be treated alike, as there is no routine treatment. We have to handle them individually and give treatment according to their needs.

While these cases reported form too small a series to draw definite conclusions, we are convinced, however, that an early diagnosis and immediate intraspinal injections of antitoxin give us the best promise of a cure. For example, Case No. I was too far gone before treatment was begun and, therefore, nothing proved efficient for cure. In the second case, the amount of antitoxin used intraspinally and intravenously was sufficient, as a dose was given intraspinally immediately to prevent further entry of toxin into the spinal cord, and a dose was given intravenously to neutralize the toxin in circulation. No more antitoxin was necessary, as the patient had had the usual prophylactic dose and the disease was of an attenuated form. In Case No 3, we were able to demonstrate clearly the efficacy of intraspinal injections of antitoxin. This patient had no prophylactic dose of antitoxin. The disease was very acute and ran a stormy course. The fact that he is living today, I believe, is due to the early diagnosis and the immediate injection of antitoxin intraspinally and intravenously during the first three days of the disease.

Dr. Ashhurst, in his article, "The Prognosis of Tetanus," paints the following picture of intraspinal injections of antitoxin, which I will quote as follows:

"The patients who recover from tetanus without receiving antitoxin by this route are exceedingly few; those who die if this treatment is used promptly are also very few. To refuse to employ antitoxin by the intraspinal route is, in the present state of our knowledge, absolutely unjustifiable. To use intravenous or the subcutaneous route alone is as sensible as it would be to set a rabble of men and boys chasing a flock of sheep with the object of preventing them from entering a certain gate. The rational thing to do is to station a strong man at the gate, and if a few sheep have passed inside before he gets there, he can head off the rest of the flock; while all the rabble can do, chasing them from behind, is to grab the hind legs or the tails of the stragglers. The toxin circulating in the blood is like a flock of sheep; it is trying to enter the spinal cord along the motor nerves, to the peripheral ends of which it is carried by the blood stream. Intravenous injections do much good, it is true, but they only overtake the toxin from the rear. The antitoxin injected intraspinally, however, is, I believe, able to head off further ingress of toxin into the cord."

This illustrates beautifully the principles involved in our most modern method of treatment, and until we all follow the principles

pictured by Ashhurst, we cannot expect to lower the mortality rate of tetanus. Statistics of the mortality rate of tetanus vary from 30 to 80 per cent. One of the old sayings that convulsions following an injury usually prove fatal is true until this day, if we neglect to give prophylactic doses of antitoxin, when indicated, or fail to recognize the disease in its early stages.

In preventing and treating tetanus, remember the following facts:

1. Give a prophylactic dose of antitoxin following all injuries.

2. Give a second prophylactic dose of antitoxin in all cases of compound fractures, eight days after injury, as by this time the first dose has been eliminated.

3. Make an early diagnosis.

4. Institute early treatment: clean the wound and prevent absorption of toxin with an intramuscular injection of antitoxin in this area; give sufficient antitoxin intravenously to neutralize the toxin in circulation: give sufficient antitoxin intraspinally to neutralize the toxin already absorbed by the central nervous system; prevent dehydration and sustain body fluids by administration of intravenous fluids; give sufficient narcotics and sedatives to keep the patient quiet.

5. The amount of antitoxin administered intraspinally and intravenously depends upon the individual case; however, give all that will be required within the first few days of the disease. Repeated large doses of antitoxin late in the disease have no value.

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TOXIC ADENOMA WITH HEART FAILURE AND EDEMA—REPORT OF CASE.*

By W. C. CAUDILL, M. D., Pearisburg, Va.

Mrs. K., white, married, aged 45, entered the hospital August 1, 1927, complaining of weakness, shortness of breath, palpitation of the heart, and swelling of the feet, legs, and abdomen.

Family History. Father died at age 77, from some stomach ailment. Mother died at age of 78, from heart, stomach and kidney trouble. Three brothers, all living and in good health. One sister living, in good health. One sister dead, cause unknown.

Past History. Patient had pneumonia in early childhood, and a moderately severe attack of "flu" in 1918. No history of rheumatism or septic sore throat, or tonsillitis. Has had a goiter for the past 20 years.

Present Illness. The present illness started about 2 years ago when she become extremely nervous, and was affected very much by rapid irregular beating of her heart. At this time she had shortness of breath and noticed slight swelling of her feet and ankles. After several weeks' rest and some medical treatment, she improved and continued to feel very well until about 4 months before entering hospital. Early in the spring she began going down again. The heart gave her most trouble of all. It was pounding and irregular, and dyspnea became more and more marked, until she was unable to rest lying down. She also became quite nervous and noticed that her feet began to swell, which gradually increased, and extended up the lower limbs to the body.

Physical Examination. The patient, a female of middle age, was pale, nervous, had an anxious expression, and presented the picture of an extremely sick woman. There was marked dyspnea with an almost constant hacking cough. She was unable to lie down, and her feet and legs were swollen to an extreme degree. The abdomen contained free fluid, and resembled the appearance of a 9 months' pregnancy. The edema of the skin and subcutaneous tissues continued well up on the side of the chest, and there was definite congestion of the base of each lung. The heart was rapid, very irregular, and only the first sound could be heard. There was marked tremor of both hands, but no exophthalmus. The thyroid showed a plus 2 enlargement on a basis of 4, and was irregular and nodular in appearance. The basal metabolic rate was plus 25; the urine negative; blood pressure 150/100; and weight 150 pounds.

*Read before the Ex-Interns' Association of St. Elizabeth's Hospital, Richmond, Va., at the Fourth Annual Meeting, October 4, 1927.

Diagnosis. Toxic adenoma with heart failure and edema, fibrillating heart.

Course. The patient was put on Lugol's solution, minims 20 three times daily; codeine sulphate, gr. 1 every 4 hours, and given 1 c.c. of novasurol intramuscularly. Fluids and salts were restricted. On August 11, 1927, ten days after entering the hospital, patient had reduced in weight from 150 to 113 pounds, the edema having been entirely removed; she was resting comfortably in a recumbent position, and had no shortness of breath. The heart had quieted down considerably, but was still irregular. The basal metabolic rate at this time was plus 10. Thyroidectomy was performed under local anesthesia on August 13, the patient exhibiting only a moderate reaction. Improvement from this time was steady and continuous, and the patient was discharged from the hospital on August 27, with temperature 97.2, pulse 78, respiration 18. On September 10, her weight was 117 pounds, basal rate minus 10; condition excellent.

On October 3, blood pressure was 130/70; pulse 90. There was still a moderate irregularity of the heart, but no edema, and the patient went about, doing her household duties comfortably.

While thyroidectomy did not remove the damage already done to the heart, I feel that it removed the greatest source of poison, and has certainly given this patient a much better prognosis than if she had been sent home without her thyroid being removed.

ETIOLOGY OF SCARLET FEVER AND THE VALUE OF THE DICK TEST COMPARED TO PHARYNGEAL CULTURES.*

By J. S. WEITZEL, M. D., Richmond, Va.

This paper is presented to stimulate a discussion upon the possibility of altering the quarantine period of scarlet fever patients and those exposed to scarlet fever, in the hope that some concrete plan may be arrived at whereby school children may be safely released from quarantine earlier than at present, saving them a great loss of time from their studies, which I feel is quite a consideration for those in the upper grades as well as for high school students.

In summarizing the extensive investigation carried on by Lees during January, February and March, 1926, at the University of Minnesota, he found that in 48 patients with scarlet fever, 15, or 31.2 per cent, had negative Dick tests at the onset of the disease. A negative test, therefore, does not seem to be a reliable index of immunity to the disease, and cannot be relied on as an aid in the diagnosis of doubtful cases of scarlet fever.

The Dick test was positive in 49.8 per cent of 530 students from rural Minnesota homes, with an average of about 17 years.

Sixty-three per cent of Dick positive reactors were rendered Dick negative by one injection of 3,000 skin test doses of toxin detoxified with 2 per cent sodium ricinoleate.

In the examinations concerning Dick's reaction in infancy conducted by Malmberg and Jacobsohn, the results obtained by Dick and Dick, with the reaction discovered by them, led them to the following conclusions:

"1. Individuals who have suffered from scarlet fever possess immune bodies and therefore react negatively.

"2. Individuals who have not suffered from scarlet fever may either react positively and be receptive to the infection, or may react negatively, owing to natural immunity, and be non-receptive to scarlet fever.

"3. At the onset of scarlet fever, in the first week, the reaction is positive; later, it becomes negative. A positive reaction in the first days is an aid in diagnosis.

"These conclusions have been modified in various countries, according to the experiences collected there; this is especially the case with the first and third conclusions."

The authors investigated the occurrence of Dick's reaction at the various periods of infancy in regard to previously suffered scarlet fever, thus controlling the researches made in other countries. Furthermore, they examined the conduct of the reaction in repeated tests, an extraordinarily important question, not yet discussed, so far as is known to the authors, in the literature.

The Dick reaction studied in 1,200 children of all ages under 15 years was positive in 66.8 per cent, negative in 24.2 per cent, and indeterminable in 9 per cent. The material was not selected. The toxin was used in a dilution of 1:400. This dilution proved to give the least pseudo-reaction. The frequency of the positive reaction at the various periods of in-

*Read before the Richmond Pediatric Society, November, 1927.

fancy varied greatly. Only 16.4 per cent positive reactions were observed within the first 6 months of life; this figure rapidly rose within the second half year and reached the highest point at 5 years of age.

These results correspond with those found by other authors—Bokay, Kramar, Hober-Orel, Frankel-Margolis, and others; only Zingher found a considerably higher percentage in the first half year. Infants at this age very seldom suffer with scarlet fever, a fact which is in accord with the low percentage of positive reactions at this age. The reason of this must be considered as unexplained, since the theory of transmission of antibodies from the mother to the infant is contradicted by the fact that mothers of Dick negative infants often have a positive reaction and because twins sometimes have different reactions.

The tables showing the relation of a negative reaction to previous scarlet fever give the following results. Eight out of 802 Dick-positive children had suffered with scarlet fever, 17 could not give certain data, but of the 290 Dick negative individuals, 222 (76.6 per cent) had not had scarlet fever. The cause of the negative reactions in the second group may be the presence of natural immunity or one acquired after abortive infection. Considering the question from a different view point, tables were made showing how many Dick-positives there were among the children who had surely had scarlet fever. Kundratitz and Okell-Parish found 46 and 65 per cent respectively, Dick and Dick 9.3 per cent, Bokay 6.6 and 2.7 per cent, and Nobel and Orel 10 per cent; the authors found 11 per cent among their material. This makes an average of 90 per cent negative reactions in children who had had scarlet fever. This figure is a strong support for the specificity of Dick's reaction. For the explanation of the relatively few contradictory cases, the clinical fact of repeated occurrence of scarlet fever in one individual is adduced.

The authors conclude that a positive reaction may be considered positive evidence, while a negative reaction should probably be judged more cautiously; it calls for a repetition of the test.

In Friedemann's work on the Bacteriologic Diagnosis of Scarlet Fever, he states that the determination of hemolytic streptococci in the pharyngeal smear preparation is not sufficient for the diagnosis of scarlet fever. Reichenmuller showed that hemolytic streptococci are also present in angina, pharyngitis, etc. The bacteriologic diagnosis is, however, of value after examination in convalescence. If, during this time, the pharynx is free from hemolytic streptococci after several examinations, it can, with the same certainty as in diphtheria, be assumed that the infectiousness of the individual has disappeared. On the other hand, a mistake is practically impossible when considering all the hemolytic streptococci which are found in scarlet fever convalescents as scarlet fever streptococci.

Systematic examinations showed that the hemolytic streptococci are most frequently found in the tonsils and the posterior pharyngeal wall, while they are not found at all, or only infrequently, upon the hard palate and upon the buccal mucous membrane.

The authors observed that patients still showed 100 per cent of hemolytic streptococci upon the tonsils 6 weeks after discharge from the hospital. This striking result had been due to infection of the scarlet fever station by scarlet fever streptococci which always caused reinfection of the patients.

The epidemiologic results are in accordance with the bacteriologic results. The authors observed that a change of hemolytic streptococci into green streptococci and a retrogression into hemolytic true scarlet fever streptococci is possible. Their results show, however, that such sources of mistakes are not of great practical importance. The examination showed that the bacteriologic control guarantees a much greater safety against the spread of the disease than the schematic termination of the isolation after 6 weeks or after the desquamation.

Investigations showed that the serum for scarlet fever does not shorten the infectiousness of the disease. The cases which were treated with serum lost their streptococci no sooner than the non-treated cases.

In Johan's article in the *Journal of Immunology*, January, 1927, pertaining to his conclusions drawn from the different degrees of the Dick skin test reaction, he feels the test should be recorded in degrees of positive reactions rather than only as positive and negative distinctions. There is no sharp dividing line between positive and negative reactions; there are border-line reactions.

The author tested 34 children on the first to the fifth day of their illness, and 77 per cent

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were found to be positive with 0.1 c.c. of toxin dilution of 1:1000.

A toxin dilution which had been inactivated by heat was used as a control in each of 17,000 skin tests. It was found that 5.3 per cent of all reactions were pseudo-reactions. Reactions giving an area of redness at least 10 m.m. in diameter were alone considered as positive. The positive reactions were grouped according to the size of area of redness.

In order to reduce the error due to difference in reading the reactions, small glass plates—on which circles of 10, 20 and 30 m.m. were etched—were used in measuring the sizes and degrees of the reactions.

It was found that the percentage of weak positive reactions is lower in the first few years of life. After the seventh year there is a very much larger percentage of weak positive reactions. It is possible that the differences in results obtained by various observers in immunizing with the same dosage may depend on the varying ratios between weak and strong positive reactions.

Smith's article in the *Archives of Disease in Childhood*, June, 1927, follows:

"It was desired to ascertain whether *S. hemolyticus* could be found in the throat cultures of patients who were Dick positive and also to determine whether the various strains could be separated into scarlatinal and non-scarlatinal types.

"It has been shown that scarlatinal types cannot be distinguished by agglutination and agglutinin-absorption tests from strains of hemolytic streptococci occurring in other infections and tests were made to determine if the exotoxins were neutralized by scarlatinal horse-antitoxin.

"The Dick test was applied to 7 nurses and 13 patients in a scarlet fever infected children's ward and also to 40 patients convalescing from diphtheria. At the same time swabs were obtained of the secretions of the throat.

"In a series of 60 cases, 27 gave a positive Dick test and 23 a negative one.

"Eight cases harboring *S. hemolyticus* gave a negative Dick test, while six cases gave a comparatively feeble positive reaction varying between 1+ and two++.

"Certain individuals, therefore, who are negative or who give slight Dick-positive reactions, can be carriers of hemolytic streptococci capable of producing a true exotoxin which can be neutralized by a horse scarlet fever antitoxin. This may indicate that those individuals who give feeble postive Dick tests and who harbor hemolytic streptococci are really immune to scarlet fever, or that they are protected by a local immunity reaction."

Everhart, in the *Atlantic Medical Journal*, January, 1927, states that numerous theories have been advanced as to the cause of scarlet fever; some believe the causative agent to be of the pathogenic bacteria, others a filtrable virus. From the evidence submitted by many, it must be believed that in scarlet fever we are dealing with an organism differing immunologically and serologically from others of the same group.

Until the work of the Dicks in producing the disease experimentally in human, no definitely satisfactory results in experimental scarlet fever had been reported.

During the early months of life, practically all children are immune who have immune mothers. Susceptibility as determined by the Dick test on large groups of children may be given as 60 per cent under 5 years of age, 30 per cent between 5 and 10 years, 15 to 20 per cent between 5 and 10 years, 15 to 20 per cent between 10 and 20 years and about 15 per cent for all adults. Immunity may be established by having had one attack of the disease, or through having had frequent small doses of streptococcic infection, or by the development by means of injections of scarlet fever toxin or antitoxin. Doses of 500, 1,500, 5,000, 15,000 and 20,000 skin-test doses at one-week intervals will give protection to most susceptibles for 2 to 3 years, probably longer.

The highest age incidence is between 3 and 15 years, the greatest number occurring up to 6 years.

The infective agent comes from the secretions of the nose and throat, or from purulent secretions of complications. Desquamation is no longer regarded as a source of danger. What part is played by the carrier is not yet definite.

It might be interesting to present a condensed "Review of the Recent Italian Literature," published in the March, 1926, issue of the *Archives of Pediatrics*.

The following review of the Italian literature relating to scarlet fever and measles is confined to the presentation of but one side of a controversial subject, because the Italian

literature, which alone is being reviewed, has presented no conflicting opinions. It seems that the work is important enough to be presented to the American profession for their critical perusal.

Within the past five years the pediatric schools of Italy, especially those of Rome, Naples and Palermo, have come to the belief that they have demonstrated the etiology of scarlet fever and of measles. Further, they are convinced that they have isolated organisms which are specific agents of these morbid affections, and the organisms isolated are not streptococci.

These Italian investigators state that they have been able to satisfy Koch's laws in the relation of these organisms, isolated from the blood, the naso-pharyngeal secretions, bone marrow, spinal fluid, and desquamating epithelium of patients in the early stages of the disease, to scarlet fever and to measles.

They report uniform success in producing the disease in young rabbits and in humans, by injecting patient's blood, filtrates from naso-pharyngeal secretions of those affected, and cultures of the organisms made on selected media, provided that the specimens were taken from patients during the exanthematous stage of the maladies. Recovery of the organism from the animals or humans suffering from the experimental disease is also claimed. In human volunteers the disease produced is undistinguishable from scarlet fever or from measles, as the case may be. Vaccines prepared from cultures of the organisms have been used both for cure and for protection with what is reported as entire success.

As these findings are so at variance with the views of American observers, it has seemed that a review of the Italian literature of the past five years, as it relates to the etiology and vaccine treatment of measles and scarlet fever, might be of interest.

The Italians are entirely familiar with the work of the American investigators and freely admit its accuracy and its great value. However, they are very critical of many of the inferences drawn by the Dicks, by Dochez and their co-workers from the observed phenomena, and are in profound disagreement with conclusions which endow the hemolytic streptococcus with any role more important than that of a complicator in scarlet fever or in measles.

Ritossa withdrew urine under sterile precautions from patients in the exanthematous period of scarlet fever and, after 24 to 36 hours' incubation, invariably demonstrated the presence of the organisms which the Italians believe to be the specific cause of the disease.

More striking still are the findings that, while the urine of convalescents was uniformly negative, those of individuals with post-scarlatinal nephritis were always positive for the organism of Di Cristina.

A further point of interest lies in the report that scales of desquamating epithelium, macerated 12 to 14 hours in normal salt solution, contained the organisms which could be grown from the scale treated in this way even though for four months preceding the experiments they had been stored in sterile petri dishes in the laboratory (Sindoni).

In their last work on scarlet fever, Di Cristina and Caronia report a total number of about 6,000 observed children who had been exposed to contagion but who were protected by inoculation with the vaccine prepared from Di Cristina's or Caronia's organisms; of these but two per cent contracted the disease.

In contrast to this most interesting work carried on by Italian investigators, it is of great interest to summarize the work done by Murphy, of Minneapolis:

"1. In a school with a total enrollment of 1,927, 404, or approximately 21 per cent, were given the Dick test for susceptibility to scarlet fever.

"2. Of the 400 tested, 304, or 75 per cent reacted positively and 100 reacted negatively.

"3. Of the 304 susceptibles, or Dick-positives, who were given the inoculation with scarlatinal toxin for active immunization, 232, or 76 per cent became Dick-negative; 31, or 10 per cent, remained positive, and 41, or 13 per cent, discontinued the inoculations, moved away, or were otherwise lost track of.

"4. Adding our 232 cases rendered immune by the inoculations to the 100 determined immune by the original test, we now have 332 out of a total of 1,927 members of our school system, or about 17 per cent immune, at least to the degree evidenced by a negative Dick test.

"5. The reactions shown in this series of cases to the somewhat high dosage of the scarlatinal toxin, while moderately severe in an occasional case, yet are relatively few, only

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21 in 304 treated, and should constitute no valid contraindication to its use.

"6. We found no definitely determinable relation between different age groups and either susceptibility to scarlet fever or the degree of active immunity obtainable.

"While it is too early to draw conclusions, it is interesting and perhaps pertinent to note that to date we have had only three cases of scarlet fever reported in our district so far this year, two of which were in boys past school age and not in school,—this, as contrasted with 11 cases, all in school, reported by this time last year."

1900 *Grove Avenue.*

USE AND ABUSE OF LABORATORY.*

By J. LAWN THOMPSON, A. M., M. D., Washington, D. C.
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In the following comments I hope you will bear in mind the fact that I wish in no way to detract from the wonderful adjunct which the laboratory is to the general practitioner or internist. To do so would be pusillanimous and would exhibit a tendency to retard the scientific progress of medicine rather than to bring it up to the standard which it so justly deserves—the standard which the great men of the past worked and died for, but a standard which has a dark shadow looming in the distance, which, if not headed off, will surely in time dislodge the keystone of the profession and so segregate the different branches of medicine that it will retain but little semblance of its pristine glory.

The foundation of the medical profession should be, and was for many years, physical diagnosis, clinical diagnosis. The reputation of the big men of the past depended upon their ability to diagnose a case by the then well-known method of observation, examination and history-taking. Inspection, palpation, percussion and ausculation, the fundamental principles of physical diagnosis, was a method of procedure that was the extent of their knowledge and was used to such great advantage that many of their diagnoses have stood the test of years and have laid the working basis for many of the past and most of the present-day ailments. Little improvement has been made in the diagnosing of the majority of present-day ailments, as far as physical diagnosis is concerned, and this diagnosis was made long before the advent of the laboratory.

The foregoing statement is made purely and simply to awaken the family physician to the fact that his services are drifting, we know not where. The laboratory has made this a day of specializing; it has made conditions so easy that most physicians will submit the patient to the laboratory man or the specialist rather than depend upon his own ability to study out the case by careful observation and thorough physical examination.

The lay press and magazines have so educated the people that they ofttimes choose their own specialist or laboratory man, while internists or family physicians are sitting back allowing the specialist and press to engulf their identity and get all the glory that should be theirs. The internist or family physician should be the man to get the honors, but we are only getting the crumbs, and very soon will not have even the crumbs.

In the cities the so-called diagnostician, or consultant, is not in reality a diagnostician at all. He is one of a group. The patient is sent to him, or selects him because of his fame. The history of the case is taken by his secretary; his temperature, pulse and respiration are taken by the nurse; his urine, gastric contents, dejecta, etc., are examined by the technician; the heart and lungs are examined by the radiographer. When the full report is in, the diagnosis is made. Group practice!

The State health departments have done wonders for the community, but we have become so dependent upon these laboratories that we do not depend upon ourselves. I venture to say that we would find, by careful examination, that more than 90 per cent of our cases could be diagnosed, and should be diagnosed, or a tentative diagnosis made before we call in the assistance of the laboratory, and then the laboratory findings should be used as a check-up only.

Clinical findings are by long odds more sure than laboratory findings. To prove this, let us cite a few instances only. The Widal for typhoid is frequently absent, even though the history and clinical findings make us sure of the disease, the Widal not showing in many cases until long after the patient is well.

The malarial organism is not always found, even in the best equipped laboratory; still,

*Read before the Section on Internal Medicine, Medical Society of the District of Columbia.

often the clinical picture is so marked that there can be no doubt.

The persistent absence of the tubercular bacilli in the sputum will lead us astray if we neglect the clinical and physical findings.

The blood Wassermann is a delusion and a snare; it is frequently absent when all else points to lues.

The anemias, as far as the blood pictures are concerned, are still in a chaotic state, and the urinalysis is not now holding the important place as of yore.

The X-ray is a wonderful adjunct when it works out, but we have become too dependent upon it; the clinical gall stones do not always show up; the kidney stone is a will-o'-the-wisp,—now we see it, now we don't and still renal colic goes merrily on. The X-ray of the gastro-intestinal tract will frequently lead us astray when the pathological condition is advanced—too far advanced. In many instances it shows up well, but clinical symptoms of gastric disturbances are often present when the report comes back from the roentengenologist that the picture shows nothing. The medical man is then disconcerted and the stomach case floats from one to another.

But it is in the examination of the heart and lungs that we are likely to make our greatest mistakes,—the mistake of not being familiar with our physical diagnosis. Thatcher, in revising Flint's physical diagnosis, states that of the 86,000 French soldiers discharged during the first year of the late war for tuberculosis, only twenty per cent were subsequently found to be suffering from that disease. Of the first 1,000 soldiers of our forces who went through expert clearing stations diagnosed as tubercular, only one hundred and twenty-five were later shown to have tuberculosis. Immediately following the war many of our soldiers were sent to tuberculosis hospitals largely on X-ray diagnosis alone, many inactive cases being mixed with active cases. What a commentary on modern physical and clinical diagnosis!

On our medical service at Providence Hospital the internes are instructed to make a thorough history of the case in hand, a careful physical examination and a tentative diagnosis before any laboratory work at all is done. This is especially true in diseases of the heart and lungs. It is surprising how a picture of the heart or lungs can lead us astray. If we are dependent upon the X-ray for pulmonary troubles, when and how are we to determine the active from arrested or healed conditions, since the patient cannot be X-rayed every day, and many times the clinical and physical findings do not coincide with the picture. As a check-up they are fine; as a reference at some future time they are of inestimable value; as a frank diagnostic measure they are, in my opinion, not what they are supposed to be.

I am glad to say that the modern hospital requests and even demands that a physician entering patients must write a tentative diagnosis, and a final diagnosis when the individual leaves the institution.

In discussing the theme of this paper with some of the best and most conscientious laboratory men, I find that they are a unit in uring the family physician to brush up on his clinical and physical diagnosis, as it would relieve them of great responsibility, and the intelligent discussion of the case in hand would make the work jointly very much more pleasant.

The economic aspect must also be taken into consideration, for, when a full laboratory examination is ordered, it dips well into the pocketbook of the patient and frequently causes much criticism by the sick one. While talking to one of our leading laboratory men, an order came in over the phone: "Doctor, I am sending a patient to ——•—— hospital. I wish you would have a hg.r.c., differential, complete blood chemistry, malarial examination, complete urinalysis, Wassermann and Widal." Doctor Doe asked the attending physician the nature of the case; he stated that he did not know, as he had only seen the patient that morning and would like as much of the report as possible by the next day. This laboratory examination would cost the patient at least twenty-five dollars, and the doctor informed me that such orders were not uncommon. One of the largest X-ray laboratories informs me that ninety-five per cent of the cases sent to them for X-ray have no tentative diagnosis on the order slip and that many conditions are found which were not suspected before the picture was taken; conditions which would easily have been discovered if a fair physical examination had been made.

The Health Office is also submerged with specimens which would not be necessary if proper examinations were made. For example:

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Last year there were 275 specimens sent to the District of Columbia Health Office for Widal examinations, with 51 positives; sputa for tuberculosis, 2,367 specimens, 557 positive; diphtheria, 12,681 cultures, 1,700 positive; malarial smears 135, 2 positive; Wassermann examinations, 3,801 specimens, 895 positive.

I am not condemning the sending in of these specimens to the Health Office, as it costs the patients nothing, but we are all taxed for the extra work, and when private laboratories perform the services the cost amounts to quite a good deal.

We can in a measure blame our medical colleges for the lax procedure in examining patients, because physical diagnosis, as a study, is classed as a minor branch and I have found it hard to have the students take the same interest in minor as they do in major subjects. When you call to mind that physical diagnosis is the very foundation of the practice of medicine, you can readily see that it should be classed far ahead of the study of the practice of medicine, which all students love. Furthermore, medical schools are turning out technicians rather than diagnosticians. Upon receipt of medical diplomas, recent graduates take internship in hospitals, specializing—some going to maternity hospitals, others to eye, ear and throat institutions, while others take surgery only in a general hospital. Few of them become thorough diagnosticians and necessarily rely upon the laboratory. The remedy lies in turning out more diagnosticians and fewer technicians. I would like to see it made a requirement that every graduate in medicine take a rotation service in a hospital or be required to practice general medicine at least three years before he takes up a specialty. The profession would then be on a more scientific basis and we would by long odds have better diagnosticians and the public would be saved greatly as to life and finances.

It is our fault that we are in a rut; it is our fault that we have been passed over by the specialist and laboratory man, for the modern layman will no longer submit to pulse-taking and prescription-writing, and, what is more to the point, they object to paying so many fees and will, therefore, go direct to the specialist or laboratory. I, for one, do not blame them, as it is mighty expensive to be sick now days, for, when a poor chap becomes ill, the ball is started rolling and he is shunted from pillar to post until he feels the almshouse will be his end.

I do not envy the specialist, but all of the ideals I cherished when I entered the profession have not entirely been shattered and I would like to see the good old days that we read about return. I would like to see an era when the family physician would hold the place in the community which he once did,—an era when the internist or family physician would be the lead-horse he once was, and not the feeder to the specialist, as he is now.

With the many convenient schools giving seasonal courses, there is no excuse for the doctor of today being lax in his physical and clinical diagnosis, as a few weeks or even a few days each year will keep the most lax of us up-to-date.

I must impress upon the family doctor the necessity of being up and doing, the necessity of studying diseased conditions thoroughly, and the necessity of depending more upon himself, of making a tentative diagnosis of his cases before calling in the aid of a specialist or laboratory. By all means, use the laboratory as a check-up, or as an aid in unravelling complicated cases.

We must drill into ourselves and our students the fundamental principles of physical diagnosis and the necessity of making physical diagnosis a major branch second to none, for when we have those open sesames—history-taking, inspection, palpation, percussion and auscultation,—our opinion of a condition cannot and will not take second place.

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INCREASING THE VALUE TO THE PHYSICIAN OF BLOOD CHEMISTRY.*

By
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E. CLARENCE RICE, M. D.,
and
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The chemical examination of the blood is one of the newer aids in the practice of medicine. Between the years 1840 and 1850, Claude Bernard showed that the normal blood contained sugar and noted that an increase of sugar in the blood caused glycosuria; Sir

*Read at meetings of the George Washington University Medical Society and the Fairfax County Medical Society, January 21, 1928, and February 18, 1928, respectively.

From the Clinical Laboratories of the Garfield Memorial and the Children's Hospitals, Washington, D. C.

A. B. Garrod during this period demonstrated that uric acid was present normally in the blood, but was increased in gout and certain forms of nephritis and not increased in rheumatism. From this time until 1912, very little advance was made in the quantitative estimation of the various substances in the blood concerned in disease and metabolism. American investigators have played an important part in the recent advances in our knowledge of the chemistry of the blood. The names of Folin, Van Slyke, Benedict and Bloor are bywords with the bio-chemist and they have been responsible in a large measure for making available to the physician and surgeon many of the diagnostic aids to be described and discussed tonight. It has only been within the past seven or eight years that these examinations have been used generally by the physicians of this city. It can be stated that the results of these examinations have been of inestimable value to many and have been the means of correctly diagnosing, prognosing and treating many diseases. The successful treatment of diabetes, nephritis, etc., can be partly ascribed to the employment of these methods.

By estimating the various constituents of the blood we can determine if they are present in normal amounts, increased above or reduced below the normal level. Variations from normal, as a result of disease, are due to either physical or metabolic changes. As an example of the former, we find a retention of nitrogenous waste products in nephritis, due to an increased impermeability of the kidney to these substances. In fevers and conditions resulting in tissue destruction, due to local death, as gangrene of an organ or part, abscesses, etc., we not infrequently find a retention of the above mentioned substances in the blood, as a result of the kidney being unable to excrete the increased nitrogenous products of metabolism as rapidly as they are formed. The normal values for the various blood constituents are determined on samples of blood drawn from individuals who have been in a fasting state for a period of from twelve to fourteen hours. For the majority of examinations, the whole blood is used, coagulation being prevented by the introduction of a chemical, such as potassium or lithium oxalate or for the estimation of sugar, sodium fluoride. Usually 10 c.c. of blood is withdrawn for the routine chemical examination and approximately 20 mg. of oxalate used. In the past, the results have often been expressed in percentage, but more recently they have been given in milligrams per 100 cubic centimeters of blood.

The following substances are usually estimated in the routine chemical examination of the blood, the amounts normally present being given:

	Mgms. per 100 c.c.
Non-protein nitrogen	25— 35
Uric acid	1— 4
Urea nitrogen	12— 18
Creatinine	0.7— 1.3
Sugar	80—120
Chlorides	450—500

The non-protein nitrogen includes such substances as uric acid, urea, ammonia, amino acids, creatine and creatinine. Normally, urea makes up approximately 50 per cent of the non-protein nitrogen, uric acid 2 per cent, ammonia 0.3 per cent and amino acids and "undetermined nitrogen" about 46 per cent.

Blood chemistry is perhaps most frequently used in connection with diseases of the kidney and pancreas. It is not infrequently that this examination furnishes the first definite evidence that the patient has nephritis or is a diabetic. Early impairment of renal function is often confirmed by a moderate retention of non-protein nitrogen being found. Of the various substances making up the non-protein nitrogen, the uric acid is the first to be held back in the blood stream as a result of kidney damage, urea next and lastly, creatinine. A knowledge of the rise and fall in the various substances named will give with other findings an excellent idea of the functional condition of the kidneys and will help in determining the prognosis. In acute nephritis it is not uncommon to find non-protein nitrogen values of 100 mg. or more. With such an increase and an elevation of urea nitrogen to 75 per cent of the total, a diagnosis of uremia should be seriously considered. Creatinine values of 3 or 4 mg. are of serious import and 5 or more ordinarily indicates that the disease will reach a fatal termination within a few months. Prostatic and other obstruction of the urinary tract is often the cause of definite nitrogen retention in the blood and the careful surgeon will do well to make use of these examinations in determining the operability of his patient and the procedure to be followed. The fact that albumin may be present in the urine in large amount does not neces-

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sarily mean that the patient should be restricted to a low protein diet. Epstein has shown that the presence of large amounts of protein in the urine of a patient, often edematous, may show little nitrogen retention, but considerable increases in chlorides and cholesterol, with variation in the normal ratio between serum globulin and albumin. This would indicate that the condition is probably due to a metabolic change as well as renal impairment. A high protein and low fat content diet will often serve to improve matters.

An excess of sugar, even though none is found in the urine may be the first reason for suspecting that the patient may be a diabetic, or the fact that the sugar in the blood is found to be normal, even though it is present in the urine may be sufficient to lead one to consider changing a diagnosis from diabetes mellitus to renal glycosuria. Normally glucose "spills over" into the urine when the amount of sugar in the blood reaches an amount in excess of from 160 to 180 mg. per 100 c.c. The fact that diabetics often have high thresholds and may not show sugar in the urine until amounts as high as 250 to 300 mg. or more are reached, makes the value of the blood sugar determination self-evident. Its usefulness in the treatment of diabetes will be discussed by another; however, I would mention its value in determining whether or not the comatose patient with sugar in the urine is suffering from diabetic coma or brain injury or to learn if the known diabetic, who has been on insulin therapy, and is found unconscious, is a candidate for insulin or glucose. The estimation of the blood sugar, and if desirable, the determination of the carbon dioxide combining power of the blood, to learn the presence or absence of acidosis, will decide these questions definitely. It is of importance to know that acidosis is not always due to the faulty oxidation of fatty acids, but may be due to the retention of other acids. Accordingly, the fact that acetone and diacetic acid are not found in the urine, does not preclude a diagnosis of acidosis and it is upon the examination of the blood that we place our chief reliance in this condition. Of the various examinations made to determine the presence or absence of acidosis or alkalosis, and the degree of same, the determination of carbon dioxide combining power is probably the most satisfactory.

In intestinal obstruction it has been found that the non-protein nitrogen is elevated and the chlorides diminished in amount, if the obstruction has been present for any length of time. By the intravenous administration of normal or hypertonic solutions of sodium chloride, many of the toxic symptoms will disappear and the patient's ability to withstand an operation and recover is greatly increased. The fact that similar findings are often obtained in pneumonia should suggest the value of the administration of sodium chloride in this disease, where specific therapy has had little effect.

In rickets the estimation of the inorganic phosphorus and calcium are of value in confirming or making a diagnosis. The inorganic phosphorus will usually be found considerably below normal and the calcium may or may not be subnormal. If the product of the amounts of these substances be below 30, evidence of rickets will almost certainly be found upon careful examination. To know the amount of calcium in the blood of the patient with infantile or surgical tetany will enable the physician to effectively treat the condition by the administration of calcium intravenously or orally or by the use of Collop's parathyroid hormone. To be able to maintain the calcium at normal and to prevent its falling to the convulsive level makes this blood examination almost a necessity.

The recent tests for the quantitative estimation of the amount of bilirubin or bile pigment in the various types of jaundice have been of inestimable value to the physician and surgeon. By means of the icterus index and the Van den Bergh test, hyperbilirubinemia can be determined before it is evident clinically. The quantitative Van den Bergh enables one to estimate the amount of bilirubin in the patient's serum. Whether or not the jaundice is hemolytic or obstructive or both can be determined by the Van den Bergh test.

While the toxemias of pregnancy are still quite obscure in so far as their causation is concerned, much of our knowledge has been obtained as a result of the chemical examination of the blood. Many of our findings have been of value in a negative way. Pernicious vomiting usually shows evidence of acidosis, with little or no other blood changes. Liver damage may be made apparent by the Van den Bergh or icterus index. Considering the albuminuria and the number of casts found in the urine of the eclamptic, it is rather sur-

prising that a marked retention of nitrogen is not found in this condition and as a result it can be stated that eclampsia is not true uremia. A retention of chlorides and a moderate elevation of uric acid is usually found. Calcium is not disturbed sufficiently to lead us to believe that this element is greatly concerned in the tetanic spasms. The various tests used in determining liver injury not infrequently show some damage there.

In closing, I would like to give several practical suggestions. A routine examination of a patient does not necessarily warrant a complete blood chemistry. If the non-protein nitrogen is normal or nearly so, little additional information is secured by learning the amount of uric acid, urea nitrogen and creatinine, which will usually be normal. In such case, a request for the estimation of the non-protein nitrogen, chlorides and sugar, will usually give the necessary information needed and the patient will be spared unnecessary expense and the laboratory saved labor which is not essential. If the non-protein nitrogen is found to be increased above normal, the bio-chemist may be requested to make a complete chemical examination. The physician should be informed by the laboratory of the normals for the various substances estimated, as these vary according to the method used in different procedures; for instance, 90 to 120 mg. is considered normal for glucose by the method of Folin and Wu; for Benedict's, 70 to 100, etc. There is no reason why the physician, who has sufficient time and a proper appreciation of the difficulties and principles involved, should not undertake the more simple blood chemical examinations. His work should be well controlled by running simultaneous tests on solutions of known content.

Blood chemistry should not cause one to slight physical and other essential examinations. It should be considered as a valuable aid and not a substitute for a thorough examination.

Considering the fact that the subject of blood chemistry is but in its infancy, we can appreciate that we are at the beginning of things. Many mysteries are to be solved and numbers of diseases are to be controlled by methods yet to be evolved.

1801 *I Street, N. W.*

THE PRESENT DAY CONCEPTION OF A CERTAIN COMMON COLONIC CONDITION.*

By W. RANDOLPH GRAHAM, M. D., Richmond, Va.

Medicine, in its evolution, having passed through the periods of anatomy, pathology and chemistry, has arrived at the period of physiology. We are living in the functional age. No longer is the clinician content to know that an organ presents certain pathology. Of more concern to both him and the patient is the extent to which normal function has been interfered with. Nor should we overlook the fact that disordered function may exist without demonstrable pathology. It is to the subject of colonic dysfunction that I wish to direct your attention for a few minutes.

However, for the sake of orientation, let's consider Brown's conception of colitis. He classifies colonic pathology as either catarrhal or ulcerative. The catarrhal type is subdivided into—A, acute, and—B, chronic. He states that acute catarrhal colitis is probably always associated with gastric, as well as intestinal symptoms,—in other words, acute gastro-enteritis. His chronic forms include (1) the abuse of certain drugs, particularly laxatives; (2) probably the largest group, that due to elimentary irritants; (3) hypothyroidism; (4) following various exogenous infections, notably typhoid and influenza; (5) the result of harbored intestinal parasites; (6) gastrogenous, this type being nearly always associated with achylia gastrica; (7) that due to pancreatic disturbances, functional or organic; in this group he includes sprue; (8) post-operative, particularly following gastro-enterostomy; and last, but by no means least, a ninth sub-division, mucous colitis. The ulcerative forms are also classified from an etiological standpoint, and are enumerated as follows: (A) those due to endogenous toxins, as seen in nephritis, uremia and pellagra; under this heading is also placed the exogenous toxins group, found in arsenic and mercury poisoning; (B) the dysenteric forms, bacillary or amebic; (C) malignancy; (D) those due to tuberculosis; and (E) the non-specific forms as described by Bargen and others.

In 1925, Emery opened up a new field for speculation when he presented three gastro-intestinal cases at the Medical Clinic of the Peter

*Read before the Southside Virginia Medical Society, at Petersburg, Va., December, 1927.

Bent Brigham Hospital. The first, an Irish woman of 40, entered the hospital complaining of diarrhoea, abdominal cramps, and loss of weight. The patient had been sick for about two years. The stools were always greenish and slimy. During the past eight months she had vomited colorless mucoid material. Two months prior to entry she had been put on a bland diet with rest in bed, and her diarrhoea ceased, although the cramps continued.

The abdominal distress consisted most frequently of general abdominal cramps, usually more severe below the umbilicus. In addition, she frequently had fullness in the epigastrium, and a sensation of being distended with gas. The symptoms were made worse by eating. Soda gave little or no relief. The patient had been taking castor oil every day for a year.

Physical examination was essentially negative, except for the abdomen, which revealed generalized tenderness, more on the right side.

Gastric analysis showed a total absence of free hydrochloric acid.

All stool examinations showed them to be mushy or watery, and containing much mucus.

X-ray examination of the stomach was negative. A barium enema revealed a smooth colon, free of haustrations, typical of a so-called chronic colitis.

The second case was a man, 50 years of age, who had always been well up to three years previously, at which time he began to be troubled with indigestion. This consisted of a sensation of fullness or weight in the epigastrium, coming on around 10 A. M. or 4 to 5 P. M. Soda and eating usually gave relief, but not invariably. He had vomited on two occasions with some relief. In addition to the above, he was troubled a great deal with a sensation of gas and distention, and had considerable abdominal rumbling and gurgling. At times he would have cramp-like pains below the umbilicus. He gave a history of drinking considerably, and on occasions would take enough to become intoxicated.

Physical examination was essentially negative except for a palpable liver edge 4 c.m. below the costal margin.

Gastric analysis showed a free hydrochloric acid of 105, and a total acidity 135.

A barium enema revealed an extremely irritable colon, and it was impossible to get the barium beyond the rectum, as the patient was unable to retain it, owing to the marked contractions.

Stools were softer than normal, and visible mucus was present in all.

I would like to call attention to the fact that practically all this patient's symptoms were referable to the upper gastro-intestinal tract, particularly the stomach. He had a symptom complex closely resembling that seen in peptic ulcer, except for the fact that soda and eating did not always give relief.

The third case was a man, 39 years of age, whose complaint was abdominal pain, eructation of gas and loss of energy.

This patient had had gastro-intestinal symptoms for twenty years. Three years previous to this time he had had severe cramp-like pains around the umbilicus, lasting five or six days. The diagnosis of chronic appendicitis and gall-bladder disease resulted in an operation, but these organs were found to be normal. The cramps persisted after operation, and the patient began to complain of frequent eructations of gas. He started to lose weight, feel tired, and went to California, where he was put on a raw fruit and vegetable diet, under which his symptoms became worse. He had vomited at times when his symptoms had been most severe.

His discomfort occurred at any time in the twenty-four hours, but the distention was very likely to come on 15 to 20 minutes after eating. Partial relief was obtained with belching and with soda, after belching had occurred.

His bowels moved once or twice daily, but he had not noticed their consistency.

Upon physical examination, the abdomen was soft, and showed a scar in the right lower quadrant. The cecum, descending colon and sigmoid were easily palpable.

Gastric analysis gave a free hydrochloric acid of 40, with a total acidity of 54.

X-ray revealed no pathology.

The patient's stools showed an increased amount of mucus, and the only one obtained on an ordinary diet was softer than normal.

In the first two, colonic symptoms are sufficiently outstanding to direct attention to the lower intestinal tract. According to Brown, the first case would be classified as gastrogenous, associated with achylia gastrica. The second, as one of the group due to alimentary irritants, and in this particular case, alcohol. In

the hands of others the first one is quite commonly diagnosed mucous colitis; the second acute or chronic gastritis, and the third is given one of several different diagnoses, such as gastric neurosis, chronic indigestion, intestinal indigestion or even neurasthenia.

Upon analysis of the clinical findings, symptomatology and laboratory findings, we see that all three were troubled with a sensation of distention associated with a sensation of fulness in the epigastrium, interpreted by the patient as due to gas. All of them belched a great deal, with some relief. All had rumbling and gurgling in the lower abdomen. Soda gave relief only after belching. All three patients had been occasionally bothered with nausea and vomiting. The stools of all three were softer than normal. Mucus was present in the stools of all cases. Barium enemas gave the same findings in each case, although varying in degree. It was the stomach alone that presented any marked contrast in findings.

Emery assumes the position, and I think his stand well taken, that if the symptomatology of the first two cases was colonic in origin, why not that of the third also? He thinks the local colonic condition is one of degree alone, and on this hypothesis he has elaborated his doctrine of disordered function of the colon.

He likes to think of the colonic mechanism as having a threshold value at which it will respond to a given stimulus. Lowering the threshold will require a smaller and raising a larger, stimulus to activate this mechanism.

To quote Emery: "The colon consists of a tube made up of smooth muscle and a complex system of nerves. The nerves are for the most part of the autonomic system and go to make up Auerbach's and the myenteric plexuses. In addition, the central nervous system plays some role, as is evidenced by the well-known fact that mental excitement may produce a diarrhoea. Now this colonic mechanism always has a certain stimulus acting upon it in the form of the intestinal contents. Under normal conditions the stimulus to activity is such that the mechanism works as it should. Under these conditions we know by experience we can throw the system out of order in one of two ways. Returning to the idea of a threshold value, we can leave this unchanged and increase the stimulus sufficiently to break through. This may be done by the excessive use of cathartics, excessive use of alcohol, or the continued use of unduly irritating food. A single application of the increased stimulus by these means results in temporary derangement, with diarrhoea and cramps, which subside as the stimulus subsides. If continued over a long period of time a chronic condition is set up which takes a longer time to recover from.

"On the other hand, the stimulus may be kept constant and the threshold lowered. This would appear to be the situation in the cases before mentioned, when, through anxiety or mental excitement, an individual is seized with diarrhoea and cramps. And this seems to be the situation in the cases with an unstable nervous system. This is what we have in the so-called neurasthenic or neurotic individual. These cases have a low threshold value normally. A stimulus that can be tolerated in the average case will be too much for the nervous individual."

The foregoing is only a theory and remains such until sufficient experiment and observation have accrued to make it appear indisputably true.

Hurst studied the physiology of intestinal movements and of defecation by means of X-ray examination following barium meals and enemata. He found that more time is required for the passage through the two feet of colon between the cecum and splenic flexure, than for the passage through the twenty-two and a half feet of the small intestine. This latter observation would seem to indicate the presence of a different sort of propulsive mechanism in the colon from that in the small intestine.

A comparison of the two types of peristalsis found in the intestinal tract is very interesting as well as pertinent. For example, food entering the duodenum is carried steadily onward by a series of so-called peristaltic rushes. This type of movement occurs in sequential order, and with sufficient speed to transmit the contents from duodenum to cecum in approximately four hours. Thus, we may say in general that once food enters the small intestine this organ does not rest until the invading material has reached the terminal ileum. Not so with the colon. In this location activity is neither continuous nor sustained, the contents being pushed along *en mass*, giving rise to the term mass persistalsis.

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For a long time students of colonic function were at a loss to explain just how this movement took place, for whenever the shadow of the colon was examined after an opaque meal it was found to be completely immobile. As a result of painstaking watchfulness, however, the problem was solved.

Hurst and others have repeatedly observed mass peristalsis in man, and it is to them that we are indebted for the discovery of several very interesting facts. First, the taking of food into the stomach has a marked effect upon the passage of content from the terminal ileum into the cecum. Second, the ingestion of food is apparently a vital factor in setting off colonic activity. And, third, there must necessarily be some connecting medium by means of which the stomach and duodenum transmit their call to action to the lower intestine and colon. Most investigators believe these latter phenomena are neurogenic in function, and are commonly known as the gastro-ileal and gastro-colic reflexes.

Defecation occurs in most healthy adults once in twenty-four hours. Normally, this act is accomplished after a sufficient quantity of material has accumulated in the lower colon and rectum to activate the complicated nervous mechanism known as the defecation reflex. In this connection there are two interesting observations. First, under normal healthy conditions, considerable movement of colonic content takes place without subjective sensations; and, second, evacuation usually occurs soon after the ingestion of food.

We see that under normal conditions the colon becomes active coincident with the ingestion of food. Therefore, it is perfectly conceivable that in those cases in which an irritable colon (lowered threshold) already exists, the taking of food into the stomach might produce the classical symptoms of rumbling and gurgling, cramp-like pains or even diarrhoea. Furthermore, it is not at all surprising that persons with these symptoms should incriminate their stomachs because of the fact their distress occurs coincident with or soon after the taking of food.

During 1926 Graves and Graves published a paper along the same lines as Emery's, entitled "Irritable Colon." Although Emery had said nothing about constipation, these authors state that constipation is generally the rule though there may be a history of diarrhoea or alternate constipation and diarrhoea.

In my own personal experience this symptom is frequently met with in patients with classical colonic symptoms, and they are almost invariably relieved by a colonic regime directed towards reducing intestinal irritation to a minimum.

The symptoms of disordered or irritable colon are diverse. They may occur at any place in the abdomen and may vary from the mildest type of distress to the most severe cramps. Patients commonly complain of distention, for which they frequently loosen their clothes, seeking relief. There is nearly always a history of gas and belching obtainable.

In a typical case, many or all of the following symptoms are complained of:

1. Gas, usually in the lower abdomen, associated with rumbling and gurgling noises and followed by the passage of flatus.
2. Constipation, or alternating constipation and diarrhoea.
3. Abdominal pain or cramps, usually in the lower abdomen.
4. Anorexia and the consequent loss of weight.
5. Nausea and vomiting, especially in neurotic cases.
6. Diarrhoea, or at least two or three bowel movements daily, which are invariably softer than normal, and usually mushy or watery.
7. Occasionally a patient will be met with who has observed that his symptoms will be aggravated by certain foods, particularly those giving a rough residue, such as cabbage, apples, pears, etc.
8. Disturbed sleep is commonly complained of.

The treatment of these cases is quite simple and almost invariably successful if carried out intelligently and continued over a sufficiently long period of time.

It is essentially as follows:

1. Stimulating or irritating articles of diet must not be allowed, such as alcohol, pepper, spices, etc.
2. Rest in bed should be advised, for these people are usually nervous, high-strung, ptotic and underweight.
3. Diet, and this is of utmost importance. In the beginning the food should be almost entirely residue free. Raw fruit, coarse vegetables, fried and greasy foods are not allowed. As the patient improves, cellulose containing articles are cautiously added until the patient is again on a normal diet.

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4. Tincture of belladonna, or belladonna and tincture of hyoscyamus, of each 5 to 10 drops 3 or 4 times a day, is administered with a view to aiding in the relaxation of spasm.

5. Heat, in the form of a hot water bottle or an electric pad, should be applied to the abdomen two or three times daily, or whenever cramps occur.

6. In the event the patient becomes worried because his bowels do not move daily, mineral oil should be prescribed, 1, 2 or 3 times daily to suit the needs of the individual case. In case the bowels should still remain sluggish, an enema should be given consisting of not over 500 c.c. of luke warm water, to which a level teaspoonful of sodium chloride has been added.

It is my belief that colonic hyper-excitability is a functional, or rather dysfunctional reality, and that it produces, in susceptible individuals, a group of symptoms which differ from those encountered in colitis only in degree. Unfortunately, because of the accompanying gas, belching, pain, nausea, vomiting and tenderness, persons who present this syndrome are frequently diagnosed peptic ulcer, gastritis, gastric neurosis, gall-bladder disease, appendicitis, pelvic inflammatory disease or neurasthenia.

Medical Arts Building.

USE OF LIPIODOL IN DIAGNOSIS OF SINUS DISEASE.*

By G. B. TRIBLE, M. D., F. A. C. S., Washington, D. C.

A consideration of the diseases involving the nasal accessory sinuses, their varying and constantly changing clinical pictures, the radical differences of opinion that exist among equally well-informed and skillful surgeons in these specialties, and the obstinacy shown in resisting treatment, has made it clear that in the chronic cases there must be an underlying factor or factors, which make for chronicity and tend to defeat in many cases the most painstaking operations or medicinal treatment.

With a view of clearing up this problem, or at least throwing some light upon it, for more than the past five years a careful study has been made, not only of the radiographs prior to operations, and the cultures from the contents of the sinuses upon operation, but a complete histological examination of the mucosa and bone has been carried out so far as possible. Owing to many unforeseen difficulties, the publication of this work was preceded by the publication of McMahon, whose published studies, however, embraced only the ethmoid and sphenoid, though at present he is working in a similar fashion upon the mastoid. In fact, the whole trend in recent sinus work has been to stress the importance of the bone factors over the previous ideas of simple mucous membrane infection and not to limit the conception of an osteomyelitis to the fulminating forms.

In a previous article,[1] the development and structure of the air cell bearing bones was taken up; briefly, there is a deposit of osseous tissue in the mesenchyme; the embryonic connective tissue lying between the brain and the skin, and the destruction, resorption and deposit of bone cells, which goes on simultaneously, and which causes the formation of the air cells, and which is the case of the maxillary antrum, goes on until death. Further, these bones are essentially flat bones and, while the development and structure of all bones is roughly the same, each consisting of a dense cortex surrounded by a vascular membrane—the periosteum—and having on the inside a more spongy, diploetic layer, in the long bones there is an actual channel filled with marrow, which blends into the cancellous tissue at the joints. Pathological bone changes will differ in the two types of bone and while the mental picture of an osteomyelitis is that of a long bone, such as the tibia, or that of an extensive necrosis, such as is sometimes found in the frontal, those lesions fortunately are not common.

In reviewing the reports of the microscopic examinations in the series of cases from which the tissue has been taken, it is found that in practically all the cases the picture is that of subacute and chronic plastic processes resulting from long standing infection, and it might be mentioned that the primary bacterial agent is more or less a matter of indifference, except in the antrum cases where rapid destruction follows the liberation of facultative anaerobes from extractions of infected teeth; here occasionally a completely necrotic mucous membrane is found. In the other cases, inflammatory changes in mucosa are demonstrated by marked round cell infiltration, endothelial proliferation, engorgement of the

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blood vessels, polymorphonuclear immigration, formation of new loose connective tissue producing a syncytium, and a marked tendency to polypoid formation. The periosteum is almost invariably thickened, there is usually marked destruction of bone and in a few cases there is some evidence of new bone formation. Irregularity of the lamellae, especially around the Haversian canals, areas of decalcification, and numbers of dead bone cells are seen.

The radiographic changes in bone involvement are not so characteristic in flat bones as in the long; beginning changes are not shown so readily while persistent shadows due to the alteration in the structure or deposit of calcium salts in the periosteum may continue after symptoms have subsided or after successful operative procedures. Fluid secretions, thickened membrane or polypi do not cause such deep shadows as alterations in the bony structure. McMahon's conclusions[2] were that five marked changes were found in the bone, based on his work in the sphenoid and ethmoid before mentioned; namely, rarefaction, necrosis, osteomalacia, fibrosis and hyperostosis and he felt that the constant changes in the walls of the vessels, diminishing the supply of blood to the part, caused the production of connective tissue. As might be expected, the changes in the ethmoid and middle turbinate partook of the same characteristics.

The practical question that confronts not only the specialists, but the general man as well, or members of the other specialties, is whether this or that case should be recommended for operation and if there be any method by which light can be thrown upon the probable contents of a sinus, prior to operation. The mere presence of pus or other fluids in the sinus does not of necessity demand operation; in fact, the acutely infected cases, other than those in the antrum from dental origin, do very well frequently without operative interference. We do have a method by which the free space in the sinus can be estimated and, since pathological findings have shown plastic changes in the walls, a differentiation can be made from the healed sinuses which still show radiographic shadows, but which have a perfectly restored lining membrane, and on the other hand, cases which may not even show pus on washing, but which may show, nevertheless, on operation a productive formation of granulations or polypi; the so-called plastic type. By radiographs alone large polypi or cysts can be demonstrated, but isolated areas of encroachment upon the normal free space, or uniform thickening of the mucosa can not be so well demonstrated.

By the injection or the instillation of non-toxic roentgen-opaque solutions, a fair estimate can be made of the contents of a sinus; and this is of particular value in antrum work, especially in the cases of dental origin or with dental fistulas. There are several which may be utilized, but the best results seem to be obtained from the use of lipiodol. The silver salts are frequently followed by a headache, and might produce an argyria.

In this preliminary report, only the work on the antrum will be taken up and, in this connection, these cases were injected with a straight needle following the aspiration and irrigation with weak saline, and drying of the cavity to avoid the presence of retained secretions. In the cases of dental fistulas, injections were made through fistulous tracts. Proetz does not favor the injection method, feeling that it is possible to inject a polyp or cyst, for instance; while if the solution were instilled through a natural opening it will float over these elevations and, besides, localized areas of the membrane may be injected which would give a misconception. No such difficulty has been encountered and further, since the antrum is the most frequently infected of the sinuses and the one most often in need of surgical attention, it is best to inject it alone.

Use of a canula and instilling through the ostium has not worked out successfully. The routine examination carried out is, first the usual inspection, shrinking the mucosa, then trans-illumination including teeth, the X-ray examination and, if cloudiness of the antrum on X-ray examination, or pus on inspection, coming probably from the antrum, the next step is aspiration of the antrum, and while the needle is in situ, injection with lipiodol, retaking the radiograph, using both anterior-posterior and lateral views.

Representative cases only are presented here. The first illustration shows complete filling out of the antrum by the roentgen-opaque solution. This would preclude the existence of any long continued disease; shadows, if such were shown on trans-illumination or X-ray, would be the result of healed processes; and

pain or discomfort if complained of, in such a case, would likely be due to other causes than antrum disease. (Figure 1).

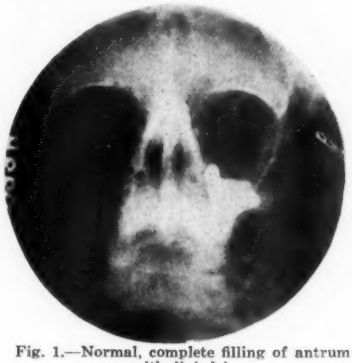

Fig. 1.—Normal, complete filling of antrum with lipiodol.

Case: Mrs. E. K. There is close approximation between the lipiodol and the sinus border on the outer wall, but in the ethmoid angle, filling defects. This was an acute exacerbation in a chronic case and on operation showed the pathology indicated by the radiograph after injection. (Figures 2 and 3).

Fig. 2.—Shows left maxillary sinus filled with lipiodol. Note close approximation between lipiodol and sinus wall.
This case is comparatively recent and would not clear up. On subsequent operation showed considerable involvement.

Fig. 3.—Lateral view.

Case: H. A. Chronic sinus infection with an acute exacerbation. The large filling defect in the outer wall was shown on operation to be due to polypoid degeneration of the mucosa. (Figures 4 and 5).

Fig. 4.—Left maxillary sinus injected with lipiodol. There are irregular, semi-circular defects in the lateral side of the lipiodol shadow. These are presumably due to encroachment of granulations upon the sinus area. Operation confirmed the findings of this picture.

Fig. 5.—Lateral view.

Case: H. W. W. Chronic antrum infection extending over a number of years. Seen in consultation and external operation advised. (Figure 6).

Fig. 6.—Shows lipiodol within left maxillary sinus. Note distance between lateral sinus wall and lipiodol shadow. This indicates thickened sinus membrane.

Case: C. Type of chronic infection in a well developed antrum, with lipiodol extending below line of the palatal arch. Probably presents alveolar pneumatization. This patient had been advised all the way from vaccines alone to radical operation. Such a case would probably not clear up without extensive surgery. Developed this in the dry climate of Nevada. (Figures 7 and 8).

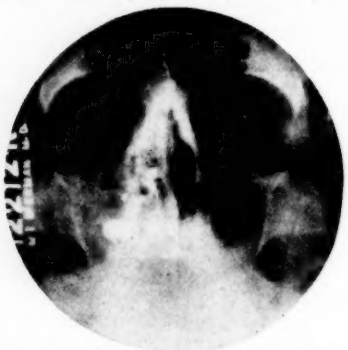

Fig. 7.—Showing antrum nearly completely filled with granulations or other inflammatory products.

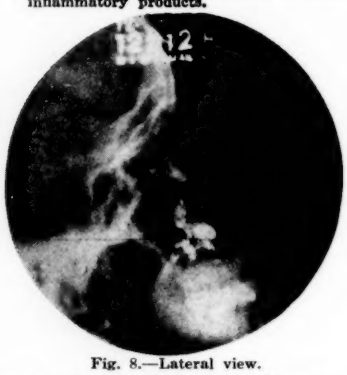

Fig. 8.—Lateral view.

The type of operative interference can be selected with a view to meeting the pathology.

Fig. 9.—Unusual appearance presented by probable cyst. Collection of lipiodol in the upper part of the antrum cavity assuming a dome effect. No operative interference.

It would be useless to use the mere window resection intranasally, if the ethmoidal angle and the upper outer border were filled with granulations or polypi, or if a dentigerous cyst be present. Malignancies are a class apart, and have not been so far encountered. (Figure 9).

Surgical frontals are relatively rare, but are of great value in such cases and in cases of differential diagnosis where a cloudy frontal is shown on radiograph, with evidence of intra-cranial complications, and the point must be established that the cloudy frontal is not an active infection. Instilling lipiodol, or some similar roentgen-opaque substance, and getting a radiograph and finding the solution filling out completely to the bony margins, makes it evident that very little stress need be laid on that sinus as a focus of infection or as a factor in producing symptomatology.

I wish to thank Dr. Bierman for his cooperation with the radiographic and photographic part. Without his indefatigable help this work could not have been carried on.

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SAFE, EFFICIENT ETHER ANESTHESIA.

By J. B. H. WARING, M. D., Blanchester, Ohio.

In the British Empire, we are told that deaths under ether anesthesia are reported almost as frequently as under chloroform. This was a distinct surprise to us, as we imagined that, with their excellent training and conservatism in all things medical, our English confreres would have safe anesthesia, if nothing else.

Our impression has been that, of the commonly used inhalation anesthetics, nitrous oxide headed the list as most lethal, followed by chloroform, with ether as a far distant third. In fact, our idea had been that, in competent hands, ether was distinctly a "safe" anesthetic.

Based on a questionnaire sent to 1,000 Fellows of the American College of Surgeons, Dr. Edwin MacD. Stanton received replies from 64 per cent; and concluded that the other 36 per cent were asleep without any anesthetic. Of the 640 surgeons scattered over the United States, who were good enough to reply to Dr. Stanton, 85 per cent employ ether as their standard anesthetic. From this, we may safely conclude that ether is the anesthet-

ic employed by the great majority of American physicians today. Despite the claims advanced for nitrous oxide, ethylene, ethyl chloride; and other newer anesthetics, ether then continues to be the anesthetic of choice.

Properly administered, we believe ether to be distinctly a "safe" anesthetic, if there be such a thing; but in the vast majority of unhappy occurrences with ether, it will be found the anesthetist was the "unsafe" factor. This is largely the fault of the profession; or, more perhaps, the fault of conditions under which we operate. Competent anesthetists may be born and not made, but we should by all means prefer the properly "made" anethetist. In the larger cities and larger hospitals, where anesthesia can be, and is practiced as a distinct specialty, physicians of long training and experience as a rule administer all anesthetics, and the anesthesia problem offers little difficulty. Likewise, accurate statistics on our larger hospitals and clinics would doubtless show minimum anesthetic mishaps and fatalities; but under present-day conditions almost any licensed physician, from hospital intern on down or up (depending on the viewpoint), is presumed to be by law vested with competency to administer anesthetics for any and almost all surgical operations where general anesthesia is indicated or employed.

A good many interns, through observation and practice under the watchful eye of competent anesthetists, learn to give fairly good and safe anesthetics; but thousands of anesthetics are given today by physicians who never saw the inside of a hospital insofar as actual internship is concerned. In the smaller communities, it is customary for the family physician to administer the anesthetic, while the small town hospital surgeon operates either in hospital or in the private home. In the larger towns many young physicians just commencing practice give anesthetics for better established practitioners who are beginning to dabble in surgery. In some states the cultists are beginning to be allowed by law to administer anesthetics, apparently on the lay legislator's presumption that anesthetic administration is a decidedly minor affair. Under conditions as they exist as a whole, it must be considered that anesthetic fatalities are comparatively infrequent, simply because the almost universally employed ether is a "safe" anesthetic.

It has been our good fortune to have obtained a fairly good training in anesthetic administration during hospital days, and since then to have given a fairly good number of general anesthetics. Likewise, we happened to be on the receiving end of two ether administrations, and our recollection of those events is quite fulsome. In the first affray, a cone was made of newspaper and towel with a wad of cotton in the apex; about half a can of ether was poured on, and, with this clamped over nose and mouth, we were quickly, if not pleasantly, suffocated or asphyxiated into a state of surgical anesthesia. The going was rough, and vividly remembered. The second anesthesia was in a hospital where we drifted off into slumber easily and smoothly under a properly given drop method ether; and the difference between the two methods was very marked from the patient's viewpoint.

In later days, whenever we had a general anesthetic to give, we always remembered the "nice" anesthetic received the second time, and always have tried to do unto others as nicely as we were done unto that second time. Experience has shown that if we can put ourselves in the patient's place and administer the anesthetic in accordance, the patient will have a fairly comfortable time of it; and the anesthetist will likewise fare not so badly.

We claim no proficiency with nitrous oxide, with ethylene, ethyl chloride, or the various sequences going through more or less an evaluation process these days.

We do believe, however, that ether by the so-called "drop method" can be given safely and efficiently, and with a minimum of discomfort to the patient; likewise, with little worry on the part of the operator as to how the patient is "doing" from an anesthetic standpoint at any stage of operation. With the anesthesia to be described, all the surgeon has to bother about is his surgical knitting.

Without the utmost concentration and great fatigue on the part of the anesthetist, it is almost impossible to give ether by a real drop method for an hour or two, when the dropping is by hand. What starts out as a drop method usually ends up with an intermittent pouring on, and cessation of pouring on, the anesthetist resting his hand and arm in between droppings. This means an uneven, jerky anesthesia and considerable wastage of ether. One

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minute the patient is getting an over-concentrated ether vapor, and the next a weak ether vapor.

As the first stage in improving our anesthesia, we developed a little piece of apparatus, for want of a better name termed an "anesthesia arm." This little device was made in two models, one of which clamped on the end of the operating table, bedside table, chair or bed. It held suspended in dropping position over patient's face the ordinary ether can, which was fitted with a drop-regulating cork device, so that, by turning a set screw, ether could be dropped at any desired rate,—increased or diminished at will. The apparatus was regulatory to any position, and with it anesthetic administration could be instantly discontinued, or resumed, at the same or a different drop rate, at will of the anesthetist. The physical labor of holding our ether can in dropping position for say a half hour to two hours or more, was thus done away with. Yet the apparatus was simplicity itself, and could quickly be dismounted or reassembled, besides being light in weight and portable in the surgeon's instrument bag. The floor-stand model was similar in all respects to the operating table model, except its support was on a weighted base and rod; instead of being clamped to table.

Fig. 1.—Cut showing "anesthesia arm" attached to end of operating table, complete with ether can in holder and automatic dropper stopper in mouth of can, ready for use. At right, modified Yankauer chloroform cone assembled with drop method ether hood in position.

This little device was a wonder worker insofar as smoothness of anesthetic went. We could commence our anesthetic at a drop rate so slow the patient hardly noticed the ether vapor when dropped on a mask moistened with cologne, oil of orange, etc. Diluted with plenty of air, and gradually increased in drop rate as the patient's respiratory apparatus became more accustomed to the ether vapor, the great majority of adult patients reached a state of surgical anesthesia with rarely the slightest excitement stage or evidence of discomfort. The surgical anesthesia stage reached, our ether drop rate was then maintained just rapid enough to keep the patient under perfect surgical anesthesia throughout the operation proper. As a rule, by the time the surgeon commenced to suture a laparotomy incision, the anesthetic could be discontinued entirely, and the operation completed with the patient's color good, breathing regular and quiet, and with the heart action having been good throughout. Recovery from the anesthetic carried a minimum of post-anesthetic nausea and vomiting, and never a trace of post-operative pneumonia or other difficulty attributable to the anesthetic. Occasionally with young patients, considerable mucus and saliva accumulate in the throat under ether, but this is rapidly aspirated with a motor driven suction pump that is brought into play from time to time, as indicated. Not so often do we find a suction pump at hand in connection with a general anesthetic, but we do find plenty of tongue grasping forceps, breathing tubes, sponge forceps and the like on the anesthetist's table. A good suction pump should be part of the anesthetist's equipment for every general anesthetic.

Our next step in development of a good anesthesia was a study of the various cones and masks in use today. Most of them are hold-overs from a decade or two back, and all were more or less efficient, but often unhandy for the anesthetist, or heavy and uncomfortable on the patient's face. For drop method ether, the well-known Ferguson inhaler is unquestionably one of the most efficient in use, and on merit deserves a far wider usage than is seen today. This is essentially a wire framework inhaler, carrying a superimposed framework over which is placed a densely woven cloth hood that is drawn taut with drawstring, so that an aperture about as big in diameter as a quarter is left, through which ether is dropped on to the cone roof below. It is light and flexible for adjustment to different faces, and, with fresh gauze and cover for each case, is clean and sanitary. The two

chambered nature of this inhaler provides perfect ether vaporization; and conserves ether considerably. Our only objection to it was that it had to be freshly reassembled each time in use; also, the wire framework often seemed to push unduly on the patient's face or nose, and to us it was just a little clumsy to hold steadily over the patient's nose and mouth.

We had used many a time the well-known Yankauer chloroform mask, and were impressed with its almost invariably easy application to the features of various patients, as well as with its compactness and general reliability. The Yankauer mask, however, was designed for chloroform administration primarily, and, with its ordinary covering of several layers of gauze, admits so much air that, unless kept saturated with ether, it is difficult to keep many patients under a satisfactory degree of anesthesia—that is, without considerable ether waste. Many anesthetists endeavor to get around this difficulty by wrapping a dampened towel about the mask, leaving a small aperture on top for ether administration. This is always more or less slip-shod in appearance and efficiency, and, as a rule, requires constant attention to avoid disarrangement with the slightest movement of the patient's head. With a towel folded over the patient's eyes, presumably "to keep ether out of the eyes", and with the Yankauer mask buried in a draped damp towel on the patient's face, it is difficult to keep an accurate eye on the patient's color,—a very important essential with general anesthesia. Some anesthetists cover the Yankauer mask with a piece of discarded rubber surgical glove, with a central aperture in the rubber through which ether may be dropped directly on the gauze of mask. This shut down the excess air intake appreciably, but still ether vaporization facilities were not entirely satisfactory. Frequently the mask becomes so ether-saturated that it runs off the mask on the patient's face, or in his eyes. Hence, the time-honored application of vaseline or cold cream to the patient's cheeks, nose and lips, at commencement of anesthesia. As it is, however, a great many anesthetists struggle through with the disadvantages of the Yankauer mask, as ordinarily arranged, partly through apathy or sheer inertia; partly because the Yankauer seems the handiest of the many anesthesia masks available. Being widely used, it is also very inexpensive as compared with some more elaborate anesthesia masks.

In an effort to combine the advantages of the Yankauer and the Ferguson masks, or, rather, to obviate some disadvantages of the two, we devised several experimental masks. A metal cuff was made to fit snugly over the gauze-covered Yankauer mask, sliding down to the retaining spring, and wide enough so that its upper rim was about an inch higher than top of mask. Over this metal cuff, a sheet of rubber tissue was placed, with an aperture about ¾ inch in diameter in its center. The cuff covered rubber assembly was slipped over the mask, and, over all, the retaining spring was slipped in place. This gave us a rubber-covered two-chambered inhaler, which worked very satisfactorily. It was a simple step from this, however, to have an all-metal-covering hood made, which slips easily over the Yankauer mask and at once gives us the undoubted ether-vaporization efficiency of the Ferguson, with the ease of handling of the Yankauer.

In use, the improved mask is placed over the patient's nose and mouth in the ordinary manner. It is not necessary to grease the patient's face in the time-honored manner, as ether is vaporized before it can come in contact with the skin. Likewise, it is not necessary to cover patient's eyes, unless the patient so desires, as the ether will not come in contact with eyes, and many anesthetists seem to feel the patient goes under with less misgiving, if the eyes are left uncovered.

The metal hooded mask has an aperture in the top about ¾ inch in diameter and, before placing over patient's face, the gauze is well sprinkled with cologne or oil of orange. In position, the patient is instructed to breathe easily; and can see for himself or herself, as the case may be, that plenty of air is available, and then feel assured that sufficient air supply will be just as available, throughout the anesthesia. Shutting off the air supply, or a too concentrated ether vapor in the early stages of anesthesia, seems to cause more fright and resistance on part of patient than anything else.

The patient is now told the anesthetic will be given slowly, with plenty of air all the time, after which the "anesthesia arm" is ad-

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justed so the dropper is over aperture in the mask. Ether is now started by a turn of the needle valve in dropper cork on ether can, and a very slow drop rate employed.

The ether drops in fluid form on the gauze covered wire-gauze dome of the Yankauer proper, and, vaporizing almost instantly, the heavier ether vapor drops through into the air space below, and is thus inhaled by the patient well mixed with air. We found that with this outfit the average major operation requires less than half the ether ordinarily used, with a far more perfect anesthesia. Induction is so smooth and easy that, in the great majority of adults, there is no appreciable excitement stage, and a stage of surgical anesthesia is reached and maintained throughout operation with a minimum of effort on part of anesthetist. Heart action and respiration suffer no appreciable interference from the anesthetic, and the patient's color remains practically perfect the entire time. When the patient is fairly well under, a small elastic band, slipped under back of neck and over top of cone, maintains it in place over nose and mouth, without constant attention by anesthetist. Patient's eyes and face remain uncovered throughout, and thus are under constant, easy observation by the anesthetist. Anesthesia may be maintained at a constant rate of drop ether for such period as desired, and then tapered off by a lysis-like diminution of the drop rate, or ceased abruptly at will of the anesthetist. Anesthetic administration may be stopped instantly at any stage, and as quickly resumed at the same drop rate, or at a different rate, as desired.

Patients as a rule come out almost as smoothly as they went under, very rarely require post-operative stimulation against any anesthetic depression effects, seem to have a minimum of nausea and retching, and very rarely have any evidence of post-operative respiratory irritation, or tendency to ether pneumonia.

Children go under the anesthetic almost as smoothly and easily as do adults, and, unless frightened immediately at commencement of the anesthetic, rarely disturb with struggling or resistance to the anesthetic.

Children fill up with mucus and saliva quite commonly under any form of ether anesthesia by inhalation—far more so than with adults, —but with either adults or children, any accumulation of mucus in the throat may be quickly removed with a saliva ejector hooked up by flexible rubber tubing to a suction pump, which should be an indispensable part of the equipment for anesthetic administration in this day and time.

Advantages of the outfit are so obvious, once it is seen in operation, that few up-to-date surgeons and anesthetists would be content to go along further with the ordinary "drop method" ether that is so commonly seen today even in well equipped hospitals and clinics.

Perfect anesthesia with half the anesthetic might well be sufficiently descriptive.

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2. J. B. H. Waring: A Simple Modification of the Yankauer Chloroform Mask. *Eye, Ear, Nose and Throat Monthly*, Chicago, March, 1927.

109 *East Main Street.*

Correspondence

Observations in Pellagra.

Norfolk, Va.,
August 1, 1928.

TO THE EDITOR:

In response to a request from Dr. Ennion G. Williams, State Health Commissioner, I am sending letter about "Some of my observations in pellagra."

In my experience pellagra occurred only in the white males and colored females—ages 2 years to 65 years. All females except one infant two years old, died. All males recovered, though several of them were sent to an asylum on account of their mental condition.

A two year "period of incubation" in half dozen instances of exposure seemed more than a coincidence.

The child two years of age was carried in its mother's arms, then a new born infant, to the house of a pellagra patient whom the mother nursed throughout her illness—thus exposing the child constantly.

This pellagra patient in turn lived next door to and had waited upon a pellagra patient who died of the disease just two years previously.

H. W. PHILLIPS, M. D.

Owing to the incidence of a number of cases of pellagra in Virginia, during the past few

months, the State Health Commissioner issued a letter to Virginia doctors, asking them to write up their observations on the cases they treated and to send them to the MONTHLY for publication. Dr. Phillips' letter is the first response to this request. (*Editor*).

Rocky Mountain Spotted Fever.

Helena, Mont.,
July 19, 1928.

TO THE EDITOR:

It has occurred to me that you might be interested in the subject of the Rocky Mountain Spotted Fever which is rather prevalent in Montana. The clinical picture of the disease is well described in various text-books so I will not enter into that but will try to tell you about some of its other phases.

The Rocky Mountain Spotted Fever, or tick fever, is rather wide-spread over a number of states in the northwest, including Montana, Wyoming, Idaho, Washington, Oregon and even northern California, and a peculiarity is that the severity of the disease as evidenced by the death rate varies markedly in different sections. The most virulent type seems to be in the Bitter Root Valley of western Montana where the case fatality rate is about 85 per cent. Other sections of Montana have a rate of about 25 per cent, while in Idaho the mortality rate is about 5 per cent. So far as I know there has been no explanation of this extreme variation in virulence. The average yearly incidence of the disease in Montana during the past ten years has been thirty-one cases and nine deaths.

For the past several years the U. S. Public Health Service, in conjunction with the Montana State Board of Health, has been making very extensive studies of the disease, especially in the Bitter Root Valley where a well equipped laboratory has been established. The work here is in charge of Doctor R. R. Spencer, Surgeon of the Public Health Service, who by the way is a native of West Point, Virginia.

It has been definitely shown that spotted fever is transmitted by the ordinary wood tick and that the intermediate host is usually some of the rodent species, especially gophers, and efforts at control have been directed largely towards eradicating both ticks and gophers. A condition that makes the work very difficult is that the life cycle of the tick extends over a period of three years and that infected ticks may transfer the infection to succeeding generations. The laboratory has been successful in making a vaccine similar to typhoid vaccine from infected ticks and they are also working on the development of a parasite which will attack the ticks. The spotted fever season coincides with the tick season in this section which is from the latter part of March until the first of July and therefore the spotted fever season is about over for this year.

The following extracts are taken from Doctor Spencer's report to the U. S. Public Health Service:

RESULTS OF VACCINATION

"In the entire Bitter Root Valley, 2,707 people have been vaccinated during the past three years. Among a population of about 2,000 people in the infected area on the west side over 1,100 have been vaccinated. Seventeen cases and 14 deaths (82 per cent mortality) have occurred among individuals not vaccinated. During the same period ten cases and one death (10 per cent mortality) occurred among the vaccinated.

In Wyoming, where the mortality rate is about 25 per cent, three clinically mild cases with complete recovery occurred in vaccinated individuals.

In Idaho, with a mortality rate of about 5 per cent, one mild case has occurred among the vaccinated.

LABORATORY INVESTIGATIONS OF ROCKY MOUNTAIN SPOTTED FEVER

(a) Efforts extending over several years have failed to successfully cultivate the causative organism of Rocky Mountain Spotted Fever, but intensive study has demonstrated a definite functional progression of the virus in ticks which includes a dormant or latent stage. No comparable morphological changes in the rickettsia associated with the disease has been demonstrated. This work will be the subject matter of a forthcoming paper.

(b) Rocky Mountain Spotted Fever infection from ticks has been shown to penetrate the unbroken skin of animals and produce the disease. Infection in the blood of animals does not possess this penetrating power.

(c) Serum from cases of Rocky Mountain Spotted Fever will agglutinate B. Proteus X 19, a quality also possessed by sera from cases of typhus fever.

(d) Guinea pigs recovered from old world

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typhus fever are not immune to Rocky Mountain Spotted Fever.

(e) In suitable dilutions, the virus of Rocky Mountain Spotted Fever in infected animal blood will not pass through pieces of ordinary commercial chamois skin, although the red cells from which the virus can not be separated by centrifugation readily pass through."

J. H. Crouch, M. D.,
Epidemiologist, Montana State Dept. of Health.

Analyses, Selections, Etc.

Venereal Disease Control: Problems and Methods.

John H. Stokes, M. D., of Philadelphia, in an address before the American Public Health Association, said that the movement in the United States for the control of syphilis and gonorrhoea lies today somewhat up-grade from the bottom of a declivity, down which it gently subsided from the epochal peak of effectiveness reached during the World War. In marked contrast, the slower progress of our more phlegmatic overseas brethren, the British, whose national program scarcely assumed distinct form during the war, has in the end brought them apparently, or at least measurably, farther than our own. Today the English vital statistics are measuring, in what appear to be fairly trustworthy terms, a decline of nearly 50 per cent in the incidence of syphilis and gonorrhoea in the British Isles. Belgium, Germany and France are reporting comparative and in some respects confirmatory data. The United States is silent, save for the ready voice of assertion based on impression rather than facts. The ebb tide of a fiscal program built for war emergency has left the skeleton of a great public health campaign high and dry on the shoals of an unenlightened retrenchment policy.

A disease such as gonorrhoea, almost as common as measles, which affects from 50 to 60 per cent of males at some time in their life history, and whose complications are responsible for a considerable part of the specialties of gynecology and urology, is not a mere war emergency. A disease such as syphilis, which ranks among the foremost if not actually the first of all the causes of death which affect mankind, a disease which has five million presumptive victims in the United States alone, which produces 13 per cent of the insanity in our asylums and an unrecorded toll of prenatal mortality, deafness, visual handicap and blindness, cannot be returned to the obscurity of peace.

Sir Arthur Newsholme, on the basis of the British mortality figures from 1901 to 1925, and the British venereal disease clinic registration from 1918 to 1925, finds that the crude annual death rate from syphilis at all ages, based on the registrar general's review from 1924, has fallen from 53 in 1901, to 33 in 1924. Mortality from general paralysis of the insane has fallen from 70 in 1901, to 40 in 1924; that from tabes dorsalis has slightly increased from 13 in 1901, to 19 in 1924; aneurysm has decreased from 30 to 26; the combined rate from 166 to 118, and relative figures from 100 to 71, in this lapse of time. The most striking change is apparent beginning with 1919, when all the rates exhibited the most pronounced drop apparent in years, a decline that has been held consistently or become more pronounced between 1919 and 1924.

Sir Arthur Newsholme points out that a revision of these figures, such as Osler suggested, to include the occult death factor from syphilis, would place the disease with cancer, tuberculosis and pneumonia, as one of the four chief causes of death. The drop in mortality figures has taken place in the face of improved diagnosis and more complete registration. The decline in death rate of 1924 as compared with 1921 amounts to 29 per cent, and when 1917 is compared with 1924, it amounts to 32 per cent.

An equally interesting evidence of the effectiveness of the British antivenereal campaign is found in the decline of new cases of gonorrhoea and new cases of syphilis in the face of an increased number of clinics and a steadily increased total attendance from 1918 to 1925. In 1917 the total number of government clinics was 113, increased to 193 in 1925. The total attendance increased from 204,692 to 1,719,148. New cases of syphilis in 1918 were 26,912; in 1919, 42,134; in 1925, 22,588. Gonorrhoea, on the other hand, has shown a smaller decline, probably because of the lesser effectiveness of medical treatment control in this disease.

Bayet concludes that arsenical medication has reduced the contagious period in syphilis from three-fourths to four-fifths, although Newsholme questions the accuracy of this esti-

mate. As they stand, the figures constitute the greatest encouragement to workers for venereal disease control that has thus far appeared.

Preventive Problems in the Field of Venereal Disease Control.

Syphilology has a well defined preventive phase, thus far all too little stressed in teaching and propaganda. The control of gonorrhoea has a similar side, less developed, however, because of the lack of a specific form of treatment which rapidly reduces infectiousness, such as is available in dealing with syphilis. For increased emphasis on the preventive aspects of syphilis, the medical school must be responsible. It must shift its teaching point of view from outspoken consequences to prodromes and obscure beginnings. Instead of permitting the neurologist to leave the impression that tabes and general paralysis are the most significant aspects of neurosyphilis, the syphilologist must emphasize the fact that symptomless neurosyphilis detected only by examination of the spinal fluid years before the onset of either consequence is really the sort with which the practitioner should busy himself. Until medicine is taught preventively to the physician of the future, the individual side of the venereal disease problem continues to move under a cloud. Sooner or later, the venereal disease control movement must face squarely the issue of medical prophylaxis of the venereal diseases. The very clinic that treats venereal disease might become a center for the application of at least a partially effective prophylaxis.

Educational methods in the control of venereal disease have perhaps had their ablest exponents and their most thorough going employment in this country. It may be properly regarded as a glorious tradition that the United States entered the war on the side of the best rounded program for the prevention of syphilis and gonorrhoea ever devised. It took into account and utilized every educative, moral and constructive influence that could be brought to bear on the problem of keeping young men and women within sexual bounds. It is then indeed a tragedy of unfulfilment that today we have not a single figure that I know of to place beside the figures of continental countries in which this educational phase received so much less emphasis, to prove that our way bears the better fruit. The European emphasis has been on treatment as the great preventive, and their figures seem to be proving that it works and works well. We who have laid stress on education are, then, directly challenged to prove that the brochure, the leaflet, the lecture, the lantern slide and movie film, the parent-teacher league, the play-ground and social worker, on which hundreds of thousands of dollars have been spent, can compare in efficacy with an equal sum spent on arsphenamine and syringes and the personnel to use them. I may give it as my personal creed that they are worth the cost, if not to the obliteration of syphilis and gonorrhoea, then to the elevation of mankind above the muck in which those diseases thrive. The preventive worth of educational propaganda should be removed as rapidly as possible from the conjectural and impressionistic field in which it now lies and placed if possible on the sounder factual basis already developing about the preventive value of treatment.

Problems of Treatment.

In discussing problems of treatment, one may consider first and woeful difference that exists today between the field of gonorrhoea and that of syphilis.

Until there is a method of controlling infectiousness comparable to that available in the treatment of syphilis with arsphenamine, the movement against gonorrhoea limps on half a foot. The effect is apparent enough in the charts of Sir Arthur Newsholme, which show where the drop in venereal disease incidence is taking place—in syphilis, the more treatable and controllable, because the more thoroughly investigated disease, and not in the incidence of gonorrhoea.

In the syphilologic field, Jadassohn and Jeanselme, according to Anwyl-Davies, attribute the decline in syphilis in the countries surrounding France, as contrasted with a recrudescence within France itself, to the French substitution of bismuth, an inferior spirillicide, for arsphenamine. Drugs and their evaluation are indeed assuming a striking importance in preventive syphilology, if the difference between the spirillicidal action of arsphenamine and bismuth can make most of the difference between a 50 per cent drop in the incidence of syphilis in Germany, England and Belgium and a 20 per cent rise in

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the city of Paris. Such a picture is probably overdrawn; but the place that drugs take in the control of syphilis is none the less supremely important. The problems that involve syphilotherapeutic agents at the present time include especially the following: Is the spirochete of syphilis becoming resistant to the agents now in common use against it? There is evidence that the blood Wassermann reaction is more difficult to reverse than it was ten years ago, even with identical technics of treatment and test. Relapse seems at times to be assuming a peculiar obstinacy and refractoriness—but this is probably a case of greater alertness and better recognition. Longer courses seem at times to accomplish less than short courses did ten years ago, but here again we deal with impression.

Simplification of treatment should be kept constantly in mind, so far as it is consistent with effectiveness—for simple but less efficient methods must not be substituted for slightly more difficult, effective ones. It is for this reason that my first instinct is to oblige the malarial therapeutists doubly to prove their ground.

The final and the crucial issue of modern clinical syphilology is that of the curability of the disease. While the results of five and ten year checks on treated patients which are now coming in, and the results of animal experiment, give us ground for high hopes, only time, repeated examinations, and autopsy on man can give us a final answer.

Research Organization and Problems.

First is the problem of finance. Research in the venereal disease, especially syphilis, involving the maintenance of animal hospitals of large size, to say nothing of laboratories, is an expensive affair. The tremendous costliness of research in this country of high wages and living standards is of course one of the most striking contrasts of our situation as compared with that of the European clinics, in which professional overcrowding and a lower living standard make it possible to secure able men at a pittance. It accounts to no small extent for the European origin of our most important syphilologic discoveries. As one of my good friends remarked to me, American clinicians are devoured by their patients, for the available personnel, even in a full-time clinical organization, never quite overtakes the routine, to say nothing of doing anything creative. The sequestration of a group for pure research thus becomes a problem in money getting on a large scale. Private wealth cannot easily be interested in a stigmatized enterprise like that of venereal disease control, bearing a label that is social anathema. Three sources of funds remain open: The great foundations, the public funds and the private contributions of the concerns who make money from the technical perfection and sale of the products of scientific advance in this field. The last mentioned should bear much more load than it has received.

As in the demonstration of the results of propaganda, in which our short-comings are manifest, so in the demonstration of the effect of treatment and the relative merit of different methods. We are unable to trace results. From 20 to 40 per cent is the best proportion of patients kept under observation, of the vast number that annually pass through our clinics. The perfection of follow-up becomes therefore one of the critical problems of the syphilis clinic; and social service, through whose aid it is usually done, plus the strong arm of the local public health officials, become two of the most important of research implements in this field of modern medicine.

Ethical and Social Collaterals.

It remains now to be seen whether the physician can be interested in other more social phases of venereal control, the more inspiring because the more constructive of character and the more expressive of idealism. Can he, for example, be made to tell the sincere and attentive student from the moral side of the tremendous wealth of personal knowledge of the sex habits and thinking of mankind which his work, like that of the priest, brings to his door? Can he be induced to see and study this material with an eye alert for other than purely medical problems? Such a consummation is devoutly to be wished. It will come to pass, and medical control of venereal disease will at last stand in its right relation to the scientific and the humanistic study of sex ethics, when the physician sees more science and less moral cock-sureness in the hygienist's program, and the hygienist finds the physician more of an idealist than he has believed him to be. The venereal disease problem plays great issues against one another. More than

one sincere mind had wondered whether, given perfected birth control and no more venereal disease, the bulwarks of the existing moral order will not collapse. Toward that inevitable day when decision in sex ethics shall be emancipated from fear of loathsome disease consequences and be determined solely by high principle and a sense of profound responsibility to the partner and the race, hygienist and venereologist should, and will, move in step.—(*Jour. Amer. Med. Assn.*, *March* 10, 1928).

L. T. P.

Roentgenology

Roentgen-Ray Diagnosis.

LEOPOLD JACHES, M. D., Radiologist, Mt. Sinai Hospital, New York City.

(*Continued from page* 278)

The Spinal Column

The spine is subject to practically the same lesions as occur in other bones and joints. The most frequent lesion is tuberculosis (Pott's disease), which mainly affects the lower thoracic and lumbar areas; less so the cervical region. In this disease, which first attacks the intervertebral disks and soon invades the bodies, which become softened and decalcified and then collapse, there results very marked deformity—kyphosis. This is, especially in advanced stages, accompanied by a cold abscess, which is shown as a dense elliptic shadow hugging both sides of the spine.

In contradistinction to this is metastatic carcinoma of the spine. Even in the osteoclastic variety the intervertebral spaces remain clear, and the bodies, though decalcified, retain their shape and size, the tough carcinomatous tissue preventing their collapse until an advanced stage is reached.

Syphilis of the spine is infrequent. Its manifestation is generally a slight destruction of the vertebrae and increased density of the parts remaining intact. The diagnosis is generally made by the history, the positive Wassermann reaction and the result of antisyphilitic treatment.

Sarcoma of the spine, as a rule, causes marked destruction of the bodies affected and is followed by early metastases in the ribs, clavicles, and other parts of the spine.

Osteomyelitis is rare. Typhoid will occasionally affect vertebrae, in which it causes localized rarefactions. The history will help make the diagnosis.

In arthritis (spondylitis) the borders of the vertebrae show osteophytes, which may reach enormous extent and cause complete coalescence between them.

Trauma may result in fracture of the auricular processes with dislocation, crushing of one or more vertebrae, or fracture of the transverse processes in the lumbar region.

The pelvis may be the site of any of the lesions affecting other flat bones or the vertebrae.

Tumors of the spinal cord and its meninges are not demonstrable by the roentgen ray except when they erode a contiguous vertebra. The introduction of iodized oil, however, helps greatly to localize these tumors and sometimes to determine their extent. The injection is made through the cisterna, the patient in the upright position, and roentgenograms are made shortly afterward. If a tumor is present it will generally block the canal, and the iodized oil will stay there for days, if not forever. If no tumor is present, the iodized oil quickly descends to the upper part of the sacrum, where it is recognized as a small, dense, inverted triangle.

The Skull and Brain

The skull is treated separately because the bony texture, which is peculiarly its own, makes the various inflammatory, constitutional or neoplastic conditions assume entirely different forms from those of the long bones. It is less often affected by the more common diseases of the long bones, while in some of the rarer diseases, such as Paget's, it is more frequently and more extensively involved than the other bones. Another reason for a separate consideration of the skull is that it is subject to lesions which occur as a secondary manifestation resulting from diseases involving the brain, its cavities or its meninges.

Osteomyelitis of the skull is not as frequent as that of the long bones. There is less periosteal reaction, and there are irregular small areas of rarefaction alternating with those of more or less normal bone.

Syphilis may appear as a gumma causing a greater or smaller defect in the skull, or a

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marked localized thickening, or as scattered aeras of thickening and rarefaction.

Carcinoma, hypernephroma, myeloma and other malignant tumors may metastasize in the skull, producing more or less numerous, small areas of bone destruction which are circular and clear cut as though they had been punched out by an instrument. Less frequent tumors are chloroma, neuroblastoma and the benign cholesteatoma. Chloroma is apt to be general but the skull metastases may be the first symptoms. Osteomas, however, are found quite frequently.

Erosions of the skull are often seen as the result of localized pressure due to a neoplasm of the brain or its meninges. Brain tumors are not demonstrable directly by the roentgen ray unless they are completely or partly calcified; indirectly they are demonstrated by causing localized areas of pressure on the bone, still less indirectly by generalized intracranial pressure. Generalized intracranial pressure is shown by erosion or complete disappearance of the sella turcica, diastasis of the sutures and thinning of the cranial bones, in which digital depressions are seen that closely fit the convolutions of the brain.

Tumors of the hypophysis cause enlargement of the sella turcica, thinning of its clinoid processes, and sometimes depression or perforation of the floor into the sphenoid sinus. Acromegaly is associated with enlargement of the facial bones and soft tissues, with prognathism and an enormous enlargement of the nasal sinuses. The bones and soft tissues of the hands and feet are also enlarged.

In recent years Dandy and his followers have been able accurately to localize intracranial tumors and other lesions by introducing air into the ventricles through a trephine opening and studying their abnormalities. Independently of him some German investigators have obtained similar results by injecting air by the endolumbar method.

Fractures of the skull are seen as linear, branching or stellate transparencies. Great care must be observed not to mistake blood vessel grooves or sutures for them. Depressed fractures can be diagnosed only by means of stereoscopic roentgenograms.

Disease of the nasal accessory sinuses generally causes a decrease in their transparency, often obliterating all detail in them. Care must be exercised when diagnosing disease of the frontal sinuses by mere lack of density; they are often very small and therefore less transparent, and not infrequently are entirely absent. Lateral views should always be made to determine their presence or size.

Disease of the mastoids is shown by general haziness in the early stages and by destruction of the septums in the later stages. Both sides should be examined for comparison.

Roentgen-ray examination of the teeth will show the presence of unerupted ones and their position, cortical abscesses by rarefaction at the root, pericementitis and pyorrhea by the lesser or greater transparent areas skirting the teeth and their roots. But one should guard against the overlapping maxillary sinuses which may simulate a transparency at a dental root.

Dentigerous cysts are shown as areas of transparency containing a tooth.

Other lesions of the jaw are similar to those of other bones and need not be dwelt on here.

(To be continued.)

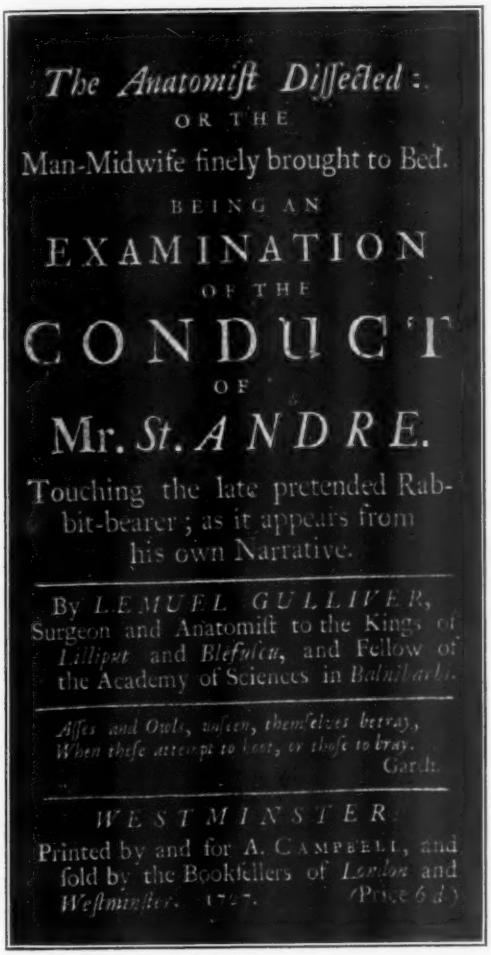
Bibliotheca Obstetrica

Lemuel Gulliver.

Gulliver (Lemuel) The anatomist dissected; or the man-midwife finely brought to bed; being an examination of the conduct of Mr. St. André; touching the late pretended rabbit-bearer; as it appears from his own narrative. 34 pp. 8°. *Westminster, A. Campbell*, 1727.

This item throws an interesting side light upon the state of the English mind at the time Swift's great satire appeared. This period is interesting to us because it antedates by only a few years the public appearance of the obstetrical forceps. Mary Toft, or Tofts (1701?-1763), a poor ignorant woman, who had borne her husband three children, was frightened by a rabbit (of all animals) while at work in the field. This so reacted upon her reproductive system that in a few months she began to bear first the viscera of a pig and then various portions of rabbits. She is said to have had altogether a litter of 15. She was attended by John Howard, the village apothecary, who had practiced mid-wifery for 30 years. Howard was completely deceived by the woman and summoned St. André, a surgeon, to the West-

minster Hospital. St. André posted to Guilford with his friend, Samuel Molyneux, the secretary to the Prince of Wales. St. André drew up a narrative of the event that caused great excitement. George I ordered Ahlers, surgeon to his German household, to investigate the matter. Ahlers removed a portion of another rabbit so unskilfully that his obstetric technic was criticized by Howard. His report was a non-committal one. The king accordingly dispatched Limborch and Sir Richard Manningham to report on the case. Manningham promptly satisfied himself that the woman was an imposter and wrung a confession out of her in the presence of Dr. James Douglas, the Duke of Montagu and Lord Baltimore. The imposture gave rise to a torrent of pamphlets and squibs, many of which were highly indecent. Hogarth lashed the temporary craze in the second version of his plate lettered "Credulity, Superstition, and Fanaticism" (1762) and also in "The Caniculariі, or the Wise Men of Godliman in Consultation." Voltaire gave a pleasant account of St. André's doctrine of "générations fortuites". A portrait of Mary Tofts was mezzotinted by Faber after Laguerre. The following list of the pamphlets that appeared at the time gives an idea of the disputatiousness of the times:


The Anatomiſt Diſſected:
OR THE
Man-Midwife finely brought to Bed.
BEING AN
EXAMINATION
OF THE
CONDUCT
OF
Mr. St. ANDRE.
Touching the late pretended Rabbit-bearer; as it appears from his own Narrative.
By LEMUEL GULLIVER,
Surgeon and Anatomiſt to the Kings of Lilliput and Blefuſcu, and Fellow of the Academy of Sciences in Balnibarbi.
Aſſes and Owls, unſeen, themſelves betray,
When theſe attempt to bray, or thoſe to bray.
Garth.
WESTMINSTER:
Printed by and for A. CAMPBELL, and ſold by the Bookſellers of London and Weſtminſter. 1727. (Price 6 d.)

An exact Diary by Sir R. Manningham, 1726; 8 vo.; A Short Narrative 1726 & 1727, 8 vo.; Remarks on a Short Narrative by Thos. Brathwaite, 1726, 8 vo.; Some Observations by Ahlers, 1726, 8 vo.; The several Depositions of Edward Costen, etc., 1727, 8 vo.; The Sooterkin Dissected, 1726, 8 vo.; The Anatomist Dissected ..... by Lemuel Gulliver, 1727, 8 vo.; Advertisement occasioned by some Passages in Sir. R. Manningham's Diary by J. Douglas, 1727, 8 vo.; Much Ado about Nothing, or the Rabbit Woman's Confession, 1727, 8 vo.; A Letter from a Male Physician, 1726, 8 vo.; The Doctors in Labour, or a New Wim-Wam from Guilford, 1727; The Discovery, or the Squire turned Ferret, 1727, fol. and 8 vo.; St. André's Miscarriage, 1727; The Wonder of Wonders, Ipswich, 1726, Bound in Rabbit-Skin.

Woman's Auxiliary, Medical Society of Virginia

DOCTOR: PLEASE CALL ATTENTION OF YOUR WIFE TO THIS DEPARTMENT.

At the request of the officers of the Auxiliary, this space has been set aside for communications from them regarding matters of interest, both to the profession and to the women members of their families.

All communications should be addressed to Mrs. E. F. Truitt, Secretary and Treasurer, Cottage Toll Road, R. F. D., Norfolk, Va.

Minneapolis Meeting of Auxiliary.

The sixth annual session of the Woman's Auxiliary to the American Medical Association was held in Minneapolis, Minnesota, June 11-15, 1928. Over 1,200 women registered and they were delightfully entertained and cared for by the local auxiliaries.

The business meetings were largely attended, 400 women being present at the all day session

of June 14. Much interest was given to the reading of the papers and State Reports. There are now well organized and efficient units in 30 states.

The abstracted proceedings will be printed at an early date and a copy sent to the entire membership.

The following officers were elected:

PRESIDENT: Mrs. Allen H. Bunce, 360 Ponce de Leon Avenue, N. E., Atlanta, Georgia.

PRESIDENT-ELECT: Mrs. George H. Hoxie, 3719 Pennsylvania Avenue, Kansas City, Missouri.

1ST VICE-PRESIDENT: Mrs. Evarts V. De Pew, 115 East Agarita Avenue, San Antonio, Texas.

2ND VICE-PRESIDENT: Mrs. David W. Parker, 52 Clark Street, Manchester, New Hampshire.

3RD VICE-PRESIDENT: Mrs. Horace Newhart, 212 West 22nd Street, Minneapolis, Minnesota.

4TH VICE-PRESIDENT: Mrs. Frank W. Cregor, 1621 North Meridian Street, Indianapolis, Indiana.

TREASURER: Mrs. Irvin Abell, 1433 South Third Street, Louisville, Kentucky.

SECRETARY: Mrs. M. T. Edgerton, 788 Penn Avenue, Atlanta, Georgia.

PARLIAMENTARIAN: Mrs. F. L. Adair, 2500 Blaisdell Avenue, Minneapolis, Minnesota.

DIRECTORS FOR TWO YEARS: Mrs. John O. McReynolds, Dallas, Texas; Mrs. Wayne W. Babcock, Philadelphia, Pennsylvania; Mrs. A. Haines Lippincott, Camden, New Jersey.

DIRECTORS FOR ONE YEAR: Mrs. F. P. Gengenbach, Denver, Colorado; Mrs. William E. Parke, Philadelphia, Pennsylvania; Mrs. J. T. Christison, Minneapolis, Minnesota.

CHAIRMEN OF COMMITTEES:

Organization: Mrs. A. T. McCormack, Louisville, Kentucky.

Health Education: Mrs. Geo. H. Hoxie, Kansas City, Missouri.

Hygeia: Mrs. A. B. McGlothlan, St. Joseph, Missouri.

Publicity: Mrs. T. C. Terrell, Fort Worth, Texas.

Program: Mrs. Southgate Leigh, Norfolk, Virginia.

Finance: Mrs. G. Henry Mundt, Chicago, Illinois.

Entertainment: Mrs. William Kuykendall, Eugene, Oregon.

Public Relations: Mrs. E. H. Cary, Dallas, Texas.

Revision of By-Laws: Mrs. Morris Fishbein, Chicago, Illinois.

SPECIAL APPOINTMENTS:

Auditor: Mrs. C. W. Roberts, Atlanta, Georgia.

Historian: Mrs. E. V. De Pew, San Antonio, Texas.

Committee on Health Films: Chairman: Mrs. John O. McReynolds, Dallas, Texas.

Committee on Resolutions: Chairman: Mrs. J. N. Hunsberger, Norristown, Pennsylvania.

Committee on Credentials and Registration: Chairman: Mrs. James N. Brawner, Atlanta, Georgia.

Special Advisory Committee: Mrs. S. C. Red, Houston, Texas, and Mrs. Seale Harris, Birmingham, Alabama.

How the Woman's Auxiliary Can Help the Doctors of Virginia.

By A VIRGINIA DOCTOR.

1. By telling the "True Story of Medicine" to the public. In their contact with other women in social life, in various societies, and in welfare movements, the members of the Auxiliary have abundant opportunity to overcome misunderstandings and misconceptions which are widely prevalent. In many instances such a situation is due to propaganda from various irregulars and cults. In a quiet and tactful way the women can effectively overcome such misrepresentation.

2. By educating the public as to the great good which will follow periodical health examinations, especially among women.

3. By assisting the doctors in making accurate and prompt reports of births.

4. By helping the doctors to regularly attend local and distant medical meetings and clinics, letting the public know that such visits will enable the doctors to give better service.

5. By making the local medical meetings more attractive, furnishing entertainments from time to time, and bringing the doctors closer together, as well as the members of the doctors' families.

6. By taking a personal interest in the offices of the individual doctors, making them more attractive, keeping them clean and seeing that they are well heated in Winter. A little rivalry among the members of the local

Auxiliary would bring about a revolution in the offices of the average doctors.

7. By helping the doctors to create a better sentiment in the communities in regard to health and welfare matters, and the enactment of the proper State and County Laws.

8. Finally, in these difficult times, when there appear certain unfortunate tendencies, especially among young people, regarding dress and unusual habits of life, the members of the Woman's Auxiliary in the various counties could, by concerted action, in conjunction with the local doctors and other thoughtful women of the counties, combat such dangerous tendencies, and bring our people back to a saner mode of living.

Truth About Medicine

In addition to the articles enumerated in our letter of May 25th, the following have been accepted:

Abbott Laboratories
Tablets Ephedrine Hydrochloride—Abbott, ¼ grain.
Deshell Laboratories, Inc.
Petrolagar (Unsweetened)
Mead Johnson & Co.
Mead's Standardized Cod Liver Oil, Flavored.
Parke, Davis & Co.
Glaseptic Ampoules Ephedrine Sulphate—P. D. & Co., 0.05 Gm. (¾ grain), 1 c.c.
Capsules Ephedrine Sulphate—P. D. & Co., 0.05 Gm. (¾ grain). Paroidin.
Prophylacto Mfg. Co.
Capsules Ephedrine Hydrochloride—Pemco, 0.3 Gm.
Capsules Ephedrine Hydrochloride—Pemco, ¼ grain.
E. R. Squibb & Sons
Squibb's Vitavose.
Swan-Myers Co.
Gentian Violet Capsules—Swan-Myers, 1 grain.

NEW AND NON-OFFICIAL REMEDIES

Pollen Extracts—Swan-Myers (New and Non-official Remedies, 1928, p. 38).—Also marketed in packages of one vial containing 2,000 units. Swan-Myers Co., Indianapolis.

Concentrated Pollen Extracts—Swan-Myers.—In addition to the products listed in New and Non-official Remedies, 1928, p. 30, the following product has been accepted: Biennial Sage Concentrated Pollen Extract—Swan-Myers. Swan-Myers Co., Indianapolis.

Glaseptic Ampoules Solution Glucose, 50 per cent, 20 c.c.—Each ampule contains dextrose, U. S. P., 10 Gm., in distilled water, to make 20 c.c.; buffered with sodium citrate, 0.25 per cent. Parke, Davis & Co., Detroit.

Glaseptic Ampoules Solution Glucose, 50 per cent, 50 c.c.—Each ampule contains dextrose, U. S. P., 25 Gm., in distilled water, to make 50 c.c.; buffered with sodium citrate, 0.25 per cent. Parke, Davis & Co., Detroit. (Jour. A. A. M., June 16, 1928, p. 1945).

Bismuth Sodium Tartrate—Searle.—A basic sodium bismuth tartrate containing from 72.7 to 73.9 per cent of bismuth. Its use is proposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis. (See Bismuth Compounds, New and Non-official Remedies, 1928, p. 104). The product is administered by intramuscular injection. It is supplied in the form of 2 c.c. ampules containing bismuth sodium tartrate—Searle, 0.03 Gm., benzyl alcohol, 0.040 Gm., sucrose, 0.5 Gm. in water sufficient to make 2 c.c. G. D. Searle & Co., Chicago.

Tablets Ephedrine Hydrochloride—Abbott, ¼ grain.—Each tablet contains ephedrine hydrochloride—Abbott (New and Non-official Remedies, 1928, p. 176), ¼ grain. Abbott Laboratories, North Chicago.

Capsules Ephedrine Sulphate—P. D. & Co., 0.05 Gm. (¾ grain).—Each capsule contains ephedrine sulphate—P. D. & Co. (New and Non-official Remedies, 1928, p. 178), 0.05 Gm. Parke, Davis & Co., Detroit.

Glaseptic Ampoules Ephedrine Sulphate—P. D. & Co., 0.05 Gm. (¾ grain), 1 c.c.—Each ampoule contains ephedrine sulphate—P. D. & Co. (New and Non-official Remedies, 1928, p. 178), 0.05 Gm. in 1 c.c. Parke, Davis & Co, Detroit. (Jour. A. M. A., June 30, 1928, p. 2103).

PROPAGANDA FOR REFORM

Pancrepatine.—The Anglo-French Drug Co., which markets "Pancrepatine A. F. D.", has not requested an examination of the preparation by the Council on Pharmacy and Chemistry. "Pancrepatine A. F. D." is stated to be "a combination of a Special Extract of the Pancreas and Hepatic Extract. . . ." It is claimed that the oral administration of the preparation results in "Reduction of Glycemia" and "reduction and sometimes total disappearance of glycosuria." There is no convincing evidence to show that any preparation taken by mouth is an effective means of producing the characteristic action of insulim. (Jour. A. M. A., March 3, 1928, p. 714).

Auriculator Not Acceptable.—The Council on Physical Therapy reports unfavorably on the Auriculator, submitted to the Council by Dr. Maury M. Stapler, Macon, Ga. It is stated to be a device for treating certain classes of deafmutism. The apparatus is a slightly different adaptation of a principle that has long been employed in the treatment of tubotympanic adhesive processes. The Council declares the Auriculator inadmissible for inclusion in the list of devices for physical therapy which are acceptable (1) because no scientific evidence has been presented to warrant the claim that it can be used successfully in treating deafmutism and (2) because the descriptive material submitted with the device contains unscientific and incorrect statements as to the causes of deafmutism. (Jour. A. M. A., March 10, 1928, p. 767).

Barbital Addiction.—The wide use of hypnotic preparations by the public has brought new problems for solution. When a single practitioner can report a hundred cases of acute poisoning or chronic addiction with one of the newer hypnotic drugs, the situation is serious. Barbital, introduced as veronal, has an increasing lay popularity for self administration. Its habit-forming propensities are sufficiently well recognized to merit the special designation of barbitalism or veronalism. A host of proprietary hypnotics now on the market may induce in greater or less degree the same result. Addiction to barbital appears not to stop with the production of moderate

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euphoria. Judgment, orientation as to time, and insight are probably the most severely harmed of the psychic faculties and are the last to clear up in convalescence. The "safe" hypnotics may become menacing to the public welfare. (Jour. A. M. A., March 10, 1928, p. 769).

Vitamins A and D in Cod Liver Oil.—Accumulated evidence seems to have established the fact that vitamin A is not identical with the antirachitic factor; as a consequence, vitamin D has been postulated. Work has been published which shows that some cod-liver oils, rich in vitamin A were poor in vitamin D and that others rich in vitamin D were poor in vitamin A. The importance of this matter may be appreciated when it is pointed out that some commercial firms whose products have a satisfactory vitamin A content claim, ipso facto, a satisfactory content of the antirachitic factor vitamin D. The Council on Pharmacy and Chemistry has previously attacked this fallacy. In the new section on Vitamin Foods to appear in the chapter on Medicinal Food in New and Non-official Remedies, 1928, the Council states that it does not feel justified in requiring any specific test or standard of antirachitic potency, but it announces the policy of encouraging manufacturers to adopt and publish such methods of testing as will enable them to guarantee a vitamin D potency for their products. For products admitted to New and Non-official Remedies the Council permits no claim of vitamin potency unless it is backed up by adequate tests for the kind of potency claimed. (Jour. A. M. A., March 10, 1928, p. 770).

The Vit-O-Net Quackery.—Credulity moves in waves and quackery rides on the crest of the wave. The 1927-1928 brand of medical humbug is Magnetism with a capital "M." A concern known as the Vit-O-Net Corporation (previously the Vit-O-Net Manufacturing Co.), and having headquarters in Chicago, puts out a large sized electric heating pad or blanket which sells for $102.50. The concern that exploits it evidently realizes that for one person that would buy its device as a heating pad, there are fifty who will buy it as a cure for whatever ails them. From the testimonials and claims made by the exploiters it appears that the Vit-O-Net blanket cures cancer, arthritis, Bright's disease, eczema, neuritis, paralysis, anemia, low blood pressure, high blood pressure, goiter, epilepsy, asthma, prostatic trouble, deafness, and various other conditions. The Vit-o-Net blanket is a convenient and expensive way of applying continuous heat to the body. Further than this one cannot truthfully go. The curative value of the Vit-O-Net blanket is that of heat which differs not at all from that developed from a hot water bottle or of a hot brick wrapped in a sock! (Jour. A. M. A., March 10, 1928, p. 789).

Epinephrine and Ephedrine in Relation to Blood Pressure.—The action of ephedrine on the circulation is different from that of epinephrine. While the latter is a powerful heart stimulant, ephedrine is a direct depressant to the heart. A heart that has been depressed by continued low blood pressure is so sensitive to the depressant action of ephedrine that the poor condition of the circulation may be aggravated by it. It is also much feebler as a vasoconstrictor than is epinephrine. Hence, as a circulatory stimulant, ephedrine has been a disappointment. (Jour A. M. A., March 10, 1928, p. 791).

Relative Safety of Sedative Drugs.—Sulphonmethane (sulphonal) and sulphonethylmethane (trional) have to a large extent been superseded by phenobarbital (luminal) and barbital (veronal), especially because the sulphonmethanes are apt to make the patient drowsy the day after the ingestion, and are liable to produce an alteration in the blood which manifests itself by hematoporphyrinuria. Barbital is a relatively safe but feeble hypnotic which may be preferred to all others when a mild effect suffices. Phenobarbital is a much more potent drug. It is safe when given in a dose of from 0.1 to 0.2 Gm. It is contraindicated in the presence of marked asthenia and in nephritis. (Jour. A. M. A., March 10, 1928, p. 792).

BiSoDol.—The advertising of the "BiSoDol Company" states that BiSoDol is composed of "Bismuth Subnit. — Magnes. Carb. — Sodium Bicarb.— Carica Papaya — Diastase—01. Menth-Pip" but contains no information in regard to the amount of each ingredient. The Council on Pharmacy and Chemistry has not examined the preparation, nor has the A. M. A. Chemical Laboratory considered it worth while to analyze this "shotgun" mixture. (Jour. A. M. A., March 10, 1928, p. 793).

Argyrol Omitted from N. N. R.—Argyrol is included in New and Non-official Remedies as a brand of mild silver protein, U. S. P. At the expiration of the period for which Argyrol stood accepted, the Council on Pharmacy and Chemistry informed the A. C. Barnes Company that the advertising claims for therapeutic efficacy of this product went beyond those of mild antiseptic or protective value allowed for mild silver protein and asked that the firm present evidence to substantiate these claims; the firm was also informed that in order to permit the continued acceptance of the product the labels and advertising must bear the pharmacopeial title, mild silver protein, as a synonym. The firm presented no satisfactory evidence for the therapeutic claims in question and refused to mention the pharmacopeial name on the labels and advertising of Argyrol. The Council therefore voted to omit Argyrol from New and Non-official Remedies and authorized publication of its report explaining this action. (Jour. A. M. A., March 17, 1928, p. 849).

Proprietary Preparations and Proprietary Names.—The rule of the Council on Pharmacy and Chemistry of the American Medical Association provides that, when a proprietary substance is admitted to the U. S. Pharmacopeia, it will be retained in New and Non-official Remedies only if the official name is given prominence on the labels and in the advertising. The justice of this rule concerning proprietary names cannot be questioned. It is in the interest of scientific medicine and of medical progress. The history of Argyrol, which the Council has been obliged to omit from New and Non-official Remedies for conflict with this rule, is another example of the manner in which clinical evidence, none too carefully obtained, may boost a new remedy into popularity beyond its due. The promoter of a proprietary preparation, riding on the crest of a wave of popularity, is seldom willing to come down to the level of the quiet sea when the storm subsides. The Council has examined calmly and dispassionately the therapeutic claims made for Argyrol and has been unable to find evidence for some claims which it terms essentially misleading. Furthermore, the manufacturer is apparently unwilling to adopt the pharmacopeial synonym for it. The insistence on this synonym is important that physicians may fully comprehend the nature of the substance that they are using. The first duty of any one working in the field of medicine, be it investigator, teacher, physician or manufacturer, is to the public that is being served. This policy has been fundamental in

compelling the omission of Argyrol. (Jour. A. M. A., March 17, 1928, p. 855).

Absorption of Insulin from the Alimentary Tract.—In recent experiments advantage has been taken of the antitryptic effect of blood serum to protect insulin given by oral paths from pancreatic digestive destruction. Observations on a series of depancreatized dogs prove that insulin protected by blood serum from the proteolytic destruction of the digestive enzymes can be absorbed in significant amounts from the alimentary tract. While the experiments are promising, this is not the story of a completely dependable method of oral therapy; the results do not establish the usefulness of the host of proprietary insulin substitutes proposed for oral use. (Jour. A. M. A., March 24, 1928, p. 985).

Radio-Rem Omitted from N. N. R.—The Council on Pharmacy and Chemistry reports that a report announcing the omission of Radio-Rem was prepared in 1925, but not published at the time because the Radium Ore Revigator Company stated that it had purchased the Radium Therapy Corporation which controlled the Radio-Rem outfits and that these were no longer marketed. Recently, the Council received a letter from the Radium Ore Revigator Company which suggested that the former recognition of the Radio-Rem may be used as a means of exploiting the "Revigator (Health Spring Strength)." The Council authorized publication of its report, explaining the omission of Radio-Rem from New and Non-official Remedies. The report explains that Radio-Rem is an apparatus designed for the production of radioactive drinking water, marketed by the Radium Therapy Corporation, San Francisco, California. The Council found that there was a close connection between the firm which marketed the Radio-Rem outfits and the firm which exploited the Radium Ore Revigator, an apparatus exploited to the public with misleading claims. The Council directed the omission of the Radio-Rem outfits from New and Non-official Remedies because they were used to further the sale of the Radium Ore Revigator, which is exploited to the public with false claims for the therapeutic efficiency of radium emanation. (Jour. A. M. A., March 31, 1928, p. 1038).

Sanatology "The Only Science of Health."—"Sanatology" is a new cult. In 1927, Percival Lemon Clark went before a committee of the Legislature of Illinois in behalf of "House Bills Nos. 296, 297 and 411." These bills were for the purpose of getting legal recognition of the cult, Sanatology. Dr. Clark has advertised through newspapers and by Radio. He sums up his attainments, thus: "I cure the sick, cure the desperately sick, cure asthma, cure rheumatism, cure hay fever, cure goiter, and all the rest of the 'incurable' diseases." Dr. Clark's merchandise accessories comprise such products as "Dr. Clark's Dextrinized Wheat Health School Brand," "Cereal Bran," "Cracked Wheat," "Steel Cut Oatmeal," and "Dr. Clark's Cooked Whole Wheat." Then there is a "Sanatology Blower," the "Sanatological Enema Bag and Attachments," the "Sanatological Oil" and the "Health School Laxative Tablet." Dr. Clark's *magnum opus* is "How to Live and Eat for Health," which is a book of 240 pages, devoted mainly to Dr. Clark's peculiar theories, dietetic and medicinal, and incidentally, to advertising Percival Lemon Clark and the Health School. (Jour. A. M. A., March 31, 1928, p. 1060).

Transkutan.—According to the advertising, "Transkutan" is being marketed by Transkutan, Inc., New York. Other advertising bears the name of P. L. Frailey. Neither Transkutan, Inc., nor P. L. Frailey has requested an examination of Transkutan by the Council on Pharmacy and Chemistry. The preparation is referred to in the advertising as a "brine combination of natural mineral springs and extracts of plants abounding in terpenes." It appears that the public is to be exploited by means of newspaper advertisements and, as is so often the case, that physicians are to be the unsuspecting promoters of this proprietary nostrum. (Jour. A. M. A., March 31, 1928, p. 1064).

Book Announcements

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Medicine, Surgery, etc. By Leading Members of the Medical Profession Throughout the World. Edited by HENRY W. CATTELL, M. D., and Collaborators. Volume II, Thirty-Eighth Series, 1928. Philadelphia and London. J. B. Lippincott Company. 1928. Octavo of 344 pages. Cloth.

Nurses, Patients, and Pocketbooks. Report of a Study of the Economics of Nursing Conducted by the Committee on the Grading of Nursing Schools. By MAY AYRES BURGESS, Director. New York City. 1928. Octavo of 618 pages. Cloth.

Methods and Problems of Medical Education. (Ninth Series). Division of Medical Education, THE ROCKEFELLER FOUNDATION. 61 Broadway, New York, N. Y., U. S. A. 1928. Paper 386 pages.

Conserving the Sight of School Children. A Program for Public Schools. Report of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association with the Co-operation of the National Society for the Prevention of Blindness. Second Edition. Revised. 60 pages, illustrated. Available at cost, National Education Association, 1201 Sixteenth Street, Northwest, Washington, D. C.; American Medical Association, 535 N. Dearborn Street, Chicago, Ill.; or National Society for the Prevention of Blindness, 370 Seventh Avenue, New York, N. Y. Price 35 cents net.

Book of Diets. McGuire Clinic and St. Luke's Hospital, Department of Dietetics, 1000 West Grace Street, Richmond, Va. 1928 Edition. The Introduction states that "This system has been found so valuable to us and the demand for copies of the book so great that it was felt that it might be of assistance to other individuals or groups besides ourselves." 50 pages.

Goiter Prevention and Thyroid Protection. By ISRAEL BRAM, M. D., Medical Director, Bram Goiter Institute, Upland, Pa.; formerly Instructor in Clinical Medicine, Jefferson Medical College, Philadelphia, etc. Philadelphia. F. A. Davis Company, Publishers. 1928. Octavo of 327 pages. Illustrated. Cloth. Price, $3.50 net.

United Fruit Company. General Offices: Boston, Massachusetts. Medical Department. Sixteenth Annual Report. 1927. Octavo of 368 pages. Paper.

Forty-second Annual Report of the Bureau of American Ethnology. To the Secretary of the Smithsonian Institution. 1924-1925. United States Government Printing Office, Washington. 1928. Quarto. 900 pages. Cloth.

XUM

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AGNES V. EDWARDS, Business Manager and Secretary-Treasurer.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

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Editorial

Acute Appendicitis.

After nearly a half century of experience in the management of acute appendicitis, as a disease problem, one is rather surprised at the recent reference in publications of today, to the probability of a greater incidence and mortality of this disease.

Interpretations of statistics are difficult. Conclusions reached are not always true or accurate. Factors connected with machinery of statistical study and factors related to domain of diagnosis, and treatment, make conclusions reached as to whether or not there is an increase in the incidence of appendicitis or an increase of death rate in the disease difficult and uncertain.

But, nevertheless, there remains the fact of it as a known occurrence and as a known cause of death; and it is probably true that a too great incidence of the malady takes place, as does a too frequent death in the light of our knowledge of today. There is probably no abdominal disease of which the public is more generally informed. Popular opinion of its occurrence and its proper treatment is accepted. Where surgeons are able to report hundreds of operations for the removal of the diseased appendix without death, one has little hesitation in reaching the conclusion of the proper treatment of the malady. It is a surgical condition. It responds to skilled surgical treatment. How can the death rate of acute appendicitis be reduced?

By prevention of the disease: This is a problem far beyond present knowledge or present day efficiency in preventive medicine. The general fact remains, however, that the occurrence of appendicitis is influenced by infection elsewhere in the body, either as a chronic focal infection or as an acute bacterial invasion. It may be further remarked, that functional integrity of the digestive tract enters materially into the incidence of this affection. For instance, Hall and Dyos, as cited in Oxford Medicine, under this title, observed that the "normal" incidence of appendicitis at Camp Logan, Texas, was 10.4 per 1,000, but during the months of November and December, 1918, during and following the epidemic of influenza, incidence of the disease increased to 44.4 per 1,000.

What is true of this influenza is probably true of other diseases, as tonsillitis, pneumonia, typhoid fever, renal infections, as well as chronic infections of nose, mouth, throat, gallbladder and tract, urinary tract, chronic misfunction of gastro-intestinal tract, from errors of diet and habits of eating.

The effort of preventive medicine in appendicitis, then, appears to lie along the lines of freeing the body of infections and the restoration of the acutely infected body to a normal state of resistance before dietetic errors of living are resumed by the patient. Of course, medicine can never sanction resumption of habits of eating or of diet that are contrary to good health, but it is too much to hope that professional advice will be followed, in line of moderation or careful dietary for any great length of time after a patient has passed long from under the orders and daily treatment of his physician, but, yet, it is worth while to endeavor to extend the duration of adherence to medical instruction as far as possible into what one calls his "normal way of living and eating."

Prevention of death from appendicitis rests in public and professional co-operation. Public co-operation must be attained by instruction to obtain immediately professional advice in all pains in abdomen and not to give cathartics or purgatives.

The serious danger of appendicitis is much augmented by purgation. Surgical operation upon a highly irritated and active gut is more risky and difficult. The public must know that pain in acute appendicitis is not removed by purgation, but probably made worse; to say

nothing of the aggravation of the field of operation into a state of extreme danger. The pain must be recognized as probably first felt in "pit of the stomach", and later in the "right side", resembling often ordinary "belly-ache." Then there is tenderness at McBurney's point, rigidity over right rectus muscle and right side of the abdomen. There is co-incident irritability of the stomach, signified by nausea, and, may be, vomiting. There is, usually, a rise of temperature of the body and acceleration of pulse, in keeping. The blood displays symptoms of inflammation, usually, as disclosed by a white cell count of 12,000 to 16,000. Soudern felt, that regardless of leucocytoses, a polynuclear count below 70 per cent means absence of pus formation or gangrene; above 70 per cent, it is indirect proportion to intensity of inflammation in the appendix.

Pain in abdomen may mean other things: acute pyelitis; acute cholecystitis, acute salpingitis and ovaritis; rupture of extra-uterine pregnancy; perforation of gastric or intestinal ulcer; pneumonitis and pleuritis; renal or ureteral colic. A diagnosis is not so easy to make and should be carefully considered before the next step is taken to lessen the mortality in acute appendicitis.

Luminal Skin Eruption.

Phenobarbital or luminal in the past fifteen years has become more and more a favorite in practice. This increasing application to meet the needs of a sedative in practice, emphasizes the importance of looking for harmful effects of the prolonged or occasional use of the drug.

Memminger* points out, with illustrative case reports, the toxic action of drug in formation of a skin rash. It is pointed out, that probably frequency of skin eruption among those using luminal more or less frequently and for a long period of time is greater than it is commonly thought to be. Skin eruptions as a toxic action in patients using luminal depends often upon amount of the dose. Memminger's report of collected case of phenobarbital eruption will be read with interest by practitioners who use luminal in practice.

Infections of Central Nervous System.

Busy practitioners, who seek to attain an intellectual grasp of the many special fields in medicine, naturally hail with interest, the publication of a thoughtful review of an important subject by an outstanding man. It is with such appreciation, that one may turn to the special article by Simon Flexner entitled "Obvious and Obscure Infcetions of Central Nervous System."* In this thesis one finds much "meat", dealing with neurologic infections in the light of knowledge acquired by investigators during the past twenty-five years. Here one notes the history and the progress in knowledge of the epidemic meningitis, poliomyelitis, and epidemic encephalitis, with cogent comments upon the worldwide influenza of 1917-1918 and 1922-1923 in connection with neurologic infections. Every practitioner may, with pro it to himself, carefully peruse this notable contribution and rest thoughtful attention on it as presenting the more important facts of these grave maladies of neurologic medicine. Epidemic meningitis, the essayist states, is an obvious infection; the direct effect of the micro-organism, the meningococcus, implanted on the membranes about in the brain and spinal cord. Discovered in 1887, it is now known, as result of much controversy and study, that meningitis is a man borne infection. Meningococcus may live on the nasal mucous membrane, although the organisms may not always possess the same biologic characteristics. From studies of the nature and effects of the organism the anti-meningococcus serum was developed. The employment of this serum in proper manner has resulted in profoundly beneficial action, whereas in anti-anti-meningococcus serum days the mortality of epidemic meningitis was from 65 to 90 per cent, now it is 25 per cent or less.

Poliomyelitis was proven to be of infectious nature only in 1907. This discovery was made by Landsteiner in the transmission of the human disease to the monkey. The elusive etiologic organism has as yet successfully hidden its identity; the invisible agent evades present day microscopy. But the monkey-made virus has transplanted the disease from animal to animal. The remarkable feat of discovering the site of the escape of virus from body remains an outsanding victory in efforts to learn of the nature of the infection and its means of transmission. Studies of poliomyelitis have proven that the virus escapes from the infected body exclusively by way of the

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secretions of the naso-pharyngeal mucous membrane. Furthermore it has been shown, that, owing to the rich and intimate lymphatic connection existing between the meninges and the nasal membrane, this channel is most certain in producing the disease: excepting direct inoculations into the brain itself. Thus the mode and channel of infection is discovered, although the organism responsible, remains beyond the present ken of man. The author states that there are strong reasons for placing the cause among living organisms, "in spite of their sub-microscopic size."

Epidemic encephalitis is another twentieth century neurologic disease; although noted, studied and discussed, it remains most obscure both as to antiquity and nature. Its intimate association with the great influenza epidemic gave strength to the suspicion that there was some inter-relation, but a recession of influenza in epidemic form has not wiped out encephalitis lethargica; it still prevails.

Flexner states that clinically it is more complex than either meningitis or poliomyelitis. This is evidenced by the train of symptoms which result in wide variations according to different parts of the brain affected. Its association with Parkinsonian symptoms, lethargic signs, muscular irritability and activity, as well as paralysis, make for a mixture of symptoms difficult to harmonize. The cause of epidemic encephalitis is unknown, but the recital of the efforts to discover it and the treatment of our present knowledge of it makes an interesting subject for careful perusal as one follows Flexner's article to its conclusion.

Clinics at the Danville Meeting.

It is hoped that members will plan to attend the clinics on Tuesday of the Danville session of the State Society. The Committee in Danville is making special effort to arrange interesting demonstrations and clinics. The value of inspection and discussion of cases as presented in a clinical manner, is undoubted. Review of the general topic, illustrated by the clinical case, by a leader, and the demonstration of symptoms or methods of treatment, tend to quicken one's knowledge and freshen one's mind on subject presented. Indeed, one can hardly visit a clinic without obtaining some new thought or idea, which will be useful in one way or another in the routine of private work.

News Notes

Successful Applicants Before State Board of Medical Examiners.

The State Board of Medical Examiners, at its meeting in Richmond, June 19-22, 1928, granted certificates to ninty-seven doctors by examination and to ten by reciprocity or commissions, to practice medicine in Virginia.

The following were granted licenses by examination:

Dr. A. Aillaud, Roanoke, Va.
Dr. Thomas H. Anderson, Richmond, Va.
Dr. A. L. Baker, Newport News, Va.
Dr. J. W. Baker, Roanoke, Va.
Dr. J. F. Barrett, Richmond, Va.
Dr. C. H. Beach, Richmond, Va.
Dr. C. G. Bennett, Richmond, Va.
Dr. W. R. Bond, Richmond, Va.
Dr. C. R. Bowman, Woodstock, Va.
Dr. A. H. Bracey, Bracey, Va.
Dr. L. H. Bracey, Hazelton, Pa.
Dr. W. O. Brandon, Richmond, Va.
Dr. Rufus Brittain, University, Va.
Dr. C. L. Brothers, Richmond, Va.
Dr. C. T. Burton, University, Va.
Dr. R. L. Claterbaugh, Clifton Forge, Va.
Dr. Garrett Dalton, Richmond, Va.
Dr. W. L. Dix, Richmond, Va.
Dr. H. L. Duncan, Richmond, Va.
Dr. E. H. Earnest, Export, Pa.
Dr. Alton C. Echols, Blackstone, Va.
Dr. L. H. Edmunds, University, Va.
Dr. W. C. Elliott, Winfall, Va.
Dr. L. Farley, Mannboro, Va.
Dr. M. M. Fields, Castlewood, Va.
Dr. W. F. Fitzhugh, Nindes Store, Va.
Dr. A. S. Floyd, Richmond, Va.
Dr. E. D. Floyd, Bridgetown, Va.
Dr. J. W. Frazier, Clifton Forge, Va.
Dr. J. A. Gallant, Richmond, Va.
Dr. J. E. Gardner, Baltimore, Md.
Dr. W. R. Gladdin, Richmond, Va.
Dr. A. F. Golderes, Richmond, Va.
Dr. H. B. Haag, Richmond, Va.
Dr. E. J. J. Haboush, Richmond, Va.
Dr. W. H. Hale, Roanoke, Va.
Dr. S. O. Handy, Stuart, Va.
Dr. O. F. Hedley, Richmond, Va.
Dr. C. R. Henderson, Keysville, Va.
Dr. George Hess, Hampton, Va.
Dr. H. B. Hicks, Richmond, Va.
Dr. E. B. Holmes, University, Va.
Dr. H. B. Holsinger, University, Va.

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Dr. J. J. Hornisher, Richmond, Va.
Dr. A. P. Hudgins, Jeffersonton, Va.
Dr. T. B. Hunter, Richmond, Va.
Dr. W. C. Jackson, Amelia, Va.
Dr. N. B. Jeter, Belona, Va.
Dr. W. H. Johnson, Richmond, Va.
Dr. E. C. Joyner, Suffolk, Va.
Dr. V. L. Kelly, Jr., University, Va.
Dr. F. Y. Ketner, Richmond, Va.
Dr. E. E. Lovas, Richmond, Va.
Dr. D. F. Love, Sydnorsville, Va.
Dr. James W. Love, Richmond, Va.
Dr. F. K. Lucas, University, Va.
Dr. A. L. Martin, Jr., Richmond, Va.
Dr. Geo. McDonald, Kansas City, Mo.
Dr. Paul McFarlane, Scottsville, Va.
Dr. J. B. McKee, University, Va.
Dr. R. T. McLaurin, Richmond, Va.
Dr. V. J. Meads, University, Va.
Dr. L. Morris, Tuskegee, Ala.
Dr. E. F. Neal, Richmond, Va.
Dr. C. L. Neale, Saluda, Va.
Dr. John M. Nokes, University, Va.
Dr. C. R. Nuckolls, University, Va.
Dr. Peter Paganok, Richmond, Va.
Dr. W. H. Perry, Jr., Cambridge, Mass.
Dr. B. F. Phillips, Richmond, Va.
Dr. D. S. Phlegar, Jr., University, Va.
Dr. F. C. Pinkerton, University, Va.
Dr. J. A. Proffitt, Richmond, Va.
Dr. V. L. Puig, Jr., University, Va.
Dr. J. H. Reed, Jr., Richmond, Va.
Dr. R. H. Reitzel, Richmond, Va.
Dr. E. L. Shamblen, Richmond, Va.
Dr. R. F. Simms, Richmond, Va.
Dr. R. W. Southerland, Richmond, Va.
Dr. W. R. Southward, Jr., Richmond, Va.
Dr. James O. Soyars, Abingdon, Va.
Dr. J. R. St. George, Portsmouth, Va.
Dr. C. B. Stringfellow, University, Va.
Dr. F. E. Tappan, Berryville, Va.
Dr. F. M. Teeple, Richmond, Va.
Dr. W. M. Thompson, Stuart, Va.
Dr. John R. Tucker, Richmond, Va.
Dr. D. D. Vance, Bristol, Tenn.
Dr. E. R. Ware, Orange, Va.
Dr. T. L. Waring, Roanoke, Va.
Dr. C. E. Watson, University, Va.
Dr. Reid White, Jr., Philadelphia, Pa.
Dr. J. P. Williams, Richlands, Va.
Dr. G. H. Wolfe, Abingdon, Va.
Dr. J. R. Wood, Dumbarton, Va.
Dr. L. S. Wornal, Princeton, W. Va.
Dr. H. B. Yeatts, Richmond, Va.

Those granted certificates by reciprocity or commissions are:

Dr. L. P. Burke, Lee Hall, Va.
Dr. H. L. Denoon, Jr., Brookline, Mass.
Dr. Otto F. Geck, Buffalo, N. Y.
Dr. J. H. C. Kimbrough, University, Va.
Dr. Thomas L. Lacy, Moyock, N. C.
Dr. B. W. Leonard, New Haven, Conn.
Dr. A. P. Morton, Bluefield, Va.
Dr. W. S. Savoy, Washington, Va.
Dr. F. L. Smith, Durham, N. C.
Dr. Grover C. Wilson, Quantico, Va.

Make Your Plans to Attend the Danville Meeting.

Danville doctors are busy during this hot weather preparing for the pleasure and comfort of members of the Medical Society of Virginia which is to meet as guests of the Pittsylvania County and Danville doctors, October 16, 17 and 18. This is to be an unusually fine meeting and a large attendance is expected. An innovation is being introduced this year in the form of clinics which will be held on Tuesday afternoon from 2:30 to 6 P. M., so that the early comers may have entertainment prior to the general meeting that evening. This should be an inducement for a large number to "come early and stay late." Clinics will be conducted by Dr. Seale Harris, of Birmingham, Ala., Dr. Thomas Wheeldon, of Richmond, Dr. Lawrence T. Royster, of University of Virginia, and Dr. E. C. Harper, of the State Board of Health. In addition to the clinics, there will be scientific and commercial exhibits, papers by members and invited guests, golf and other social features.

Hotels are giving the following rates:

Danville Hotel
Single rooms—$2.00 to $3.00 a day.
Double rooms—$4.50 to $7.00 a day.

Burton Hotel
Single rooms—$1.75 to $3.00 a day.
Double rooms—$3.00 to $5.50 a day.

Leland Hotel
Single rooms—$1.50 to $3.00 a day.
Double rooms—$2.50 to $4.00 a day.

It is suggested that members should make reservations in advance, by writing the hotels or to Dr. P. W. Miles, chairman in charge of hotels.

Hotel Danville is headquarters for the meeting. The House of Delegates will meet in the ball room of this hotel and the scientific exhibits will be in the balcony on the same floor. The regular scientific sessions will be held in

the auditorium of the Elks' Club, two doors from the hotel, and the commercial exhibits will be in the lobby of the Elks' Club.

The House of Delegates will have its first meeting on Tuesday afternoon and all component societies are urged to send their quota of delegates as many matters of importance are to be discussed at this meeting.

Be sure to bring your wives and daughters as the Woman's Auxiliary will look out for them.

Re-Appointed State Health Commissioner.

Governor Byrd early in July re-appointed Dr. Ennion G. Williams as State Health Commissioner for another term of four years. Dr. Williams has just completed twenty years' service in this position.

Married.

Dr. Blanton P. Seward, recently of Richmond but now of Roanoke, Va., and Miss Margaret Barker, Richmond, in late June.

Dr. Lee Gordon Hastings, of the class of '26, Medical College of Virginia, formerly of Emporia, Va., and Miss Agatha Dodson, Minden, La., June 23. They will be located temporarily at Eldorado, Ark.

Dr. C. W. Trexler, San Diego, Calif., of the class of '26, University of Virginia, and Miss Eva Rose Cuneo, of San Francisco, Calif., June 29th. Immediately following their marriage they left for Kealia, Kanai, Hawaii, where Dr. Trexler had accepted the position as director of the Samuel Mahelona Memorial Hospital.

Dr. Clarence P. Obenschain,

Recently of New Hope, Va., has moved to Staunton, Va., where he is engaged in general practice.

The Southwestern Virginia Medical Society

Will hold its next semi-annual meeting in Wytheville, September the 27th and 28th, under the presidency of Dr. J. L. Early, of Radford. There will be a symposium on head injuries, and papers by a number of members in addition to those by invited guests, Dr. Robert H. Ivy, of Philadelphia, and Dr. William T. Graham, of Richmond. Wytheville is centrally located for this society and, having a splendid new hotel, a large attendance is expected. Dr. E. M. Chitwood is chairman of the local committee of arrangments; Dr. E. G. Gill, Roanoke, is secretary of the society.

Hospital Centennial Held.

On July the 24th, the Western State Hospital celebrated its centennial on which occasion there were nearly two hundred guests for the luncheon and exercises following. Dr. J. S. DeJarnette, for many years superintendent of this institution, reviewed its history from the admission of the first patient in 1828. There were several other speakers all of whom paid tribute to the splendid work which has been done by Dr. DeJarnette.

Virginia Doctors at Summer Training Camp.

The following Virginia doctors returned July the 21st from Carlisle Barracks, Pa., where they attended the summer training camp for reserve officers: Dr. Burton O. Clark, National Soldiers Home, Hampton; Dr. Thos. F. Dodd, Alexandria, R. F. D. 3; Dr. Charles M. Edwards, Richmond; Dr. Walter C. Elliott, Winfall; Dr. William Engler, Norfolk; Dr. Gerald A. Ezekiel, Richmond; Dr. Charles H. Henderson, Keysville; Dr. George A. C. Jennings, Richmond; Dr. George A. L. Kolmer, Salem; Dr. Frederick U. Metcalf, Roanoke; Dr. Clarence P. Obenschain, Staunton; Dr. Thos. N. Spessard, Richmond; Dr. Pitt E. Tucker, Buckingham; and Dr. William Robt. Weisiger, Richmond.

Mary Washington Hospital,

Fredericksburg, Va., has been completed and can now accommodate sixty patients. It is on the site of the old hospital and during its construction, patients have been housed in an annex of the old Maury Hotel. The building is brick, two stories in height, and is modern in all its equipment.

Kentucky and Mississippi Pass Mothers' Aid Laws.

Kentucky and Mississippi have been added to the list of States which make legal provision for aid to mothers with dependent children, so that the children may be cared for at home. Neither state provides a state fund for the purpose. In Kentucky the counties are authorized to make the necessary allowances. In Mississippi the "children's aid fund" for each county is to be set aside by the county board of supervisors from the tax collected to support the poor or out of the county general fund.

The only States now without mothers' aid legislation are Alabama, Georgia, New Mexico, and South Carolina. It is estimated that approximately 200,000 children in the United States are now receiving public aid in their own homes.

Dr. Blanton P. Seward,

Who has been practicing in Richmond, Va., for several years, has accepted a position in the medical department at Lewis Gale Hospital,, Roanoke, Va., and entered upon his new work on July the 1st.

The American Laryngological Association,

At its annual meeting held recently in Washington, D. C., elected Dr. Charles W. Richardson, of that city, president, and Dr. George M. Coates, Philadelphia, secretary.

Elementary Training for Doctors' Helpers.

The University of Virginia held its fourth Institute for Doctors' Helpers July 30 to August 3, inclusive. This Institute, as well as one given for colored women at the Virginia Normal and Industrial School at Petersburg from August 6 to August 10, inclusive, was conducted by trained lecturers from the State Department of Health.

The purpose of these courses is to teach women such elementary principles of nursing as may qualify them to act as bedside helpers when trained nurses are neither available nor absolutely necessary. The courses are designed so they may be particularly helpful in training women to act in confinement cases, and it is hoped that many of these trained women may eventually supplant many of the ignorant midwives upon whom so many of the rural women have to depend at childbirth.

Junior Safety Patrols Save Children.

During 1927 traffic accidents in Baltimore caused 169 deaths; of these, 56 were of child pedestrians. In school neighborhoods where junior safety councils or patrols were functioning the number of accidents was very small in comparison with other sections. In the hope of reducing the hazards to school children, the Baltimore Safety Council has obtained the consent of the school authorities to organize a safety council or patrol in every school of the city. It also sponsors every May two junior safety council conventions, one for white and one for colored children, the object of which is to stimulate interest in the public playgrounds and direct their use during the summer vacation. They are attended by approximately 3,500 children.

Dr. Francis W. Upshur,

Richmond, Va., announces the removal of his offices from 1209 to 805 West Franklin Street, this city.

Doctor Fined for Failure to Comply With Statute.

A prominent physician of Charlottesville has been fined $25 for failing to put nitrate of silver drops in the eyes of an infant whose birth he recently attended according to report from the State Board of Health. The child subsequently had a dangerous eye infection which experts testified could have been averted if the drops had been used according to the Virginia law. Fortunately blindness was prevented by the skill of practitioners at the University hospital.

Inquiry discloses that companies which insure doctors against suits for negligence or malpractice do not include among the insurable causes any actions which result from failure to obey a statute. This policy on the part of the insurance companies makes it, therefore, extremely dangerous for doctors to disregard the law.

Wisconsin's Double and Triple Compensation Law.

In Wisconsin employers are required to pay double or triple compensation to children injured while illegally employed, according to the nature of the violation of the law involved. In 1927 extra compensation payments ranged from less than $20 to nearly $5,800, and the aggregate amount of such compensation under claim cases settled during the year was more than $16,000.

Appointed Mental Hygiene Commissioner.

Dr. George H. Preston, Baltimore, has just been appointed by Governor Ritchie as commissioner of hygiene of Maryland to succeed the late Dr. Arthur P. Herring. Dr. Preston is a graduate of Johns Hopkins University School of Medicine, and was for three years connected with the Children's Clinic in Richmond, Va. He left Richmond the first of this year, to become executive secretary of the Mental Hygiene Society of Maryland.

Dr. Holcombe McG. Robertson,

Of the U. S. Public Health Service and for a number of years a member of the Medical Society of Virginia, has been detailed for duty overseas as examiner of immigrants. His address is care the American Consulate, Glasgow, Scotland.

Dr. John L. Thornton.

Warrenton, Va., is home again after several weeks spent at the University of Virginia Hospital, where he was under treatment.

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Work of the Massachusetts S. P. C. C., 1927.

In 1927 the Massachusetts Society for the Prevention of Cruelty to Children received nearly 12,000 children under its care—11 per cent more than in 1926. The society attributes this larger number rather to an increased use of its help by the public than to an increase in child abuse and neglect. About 4 out of 5 of the family problems presented last year were adjusted without legal action, so that only 1 in 5 of the 12,000 children was brought directly under the jurisdiction of a court. It was found necessary to remove only 1 child in 25 permanently from parental control.

Dr. William L. Gannaway,

Recently of Abingdon, Va., announces that he has located at Kingsport, Tenn.

Awarded Gold Medal for Work on Tularaemia.

Dr. Edward Francis, United States Public Health Service, was presented a gold medal at the recent meeting of the American Medical Association. Research work on Tularaemia, a new disease of man, was considered by the committee as the most important medical work of the year, and Dr. Francis the leading authority.

Tularaemia, an epizootic of wild rabbits, is caused by Bacterium tularense. Cooks, hunters, housewives and market men suffer mostly. Discovered in Tulare County, Calif., the disease spread over forty-two states, the exceptions being the New England group. Dr. Francis, himself, was taken down with it.

The Interstate Post-Graduate Medical Association of North America

Will meet in Atlanta, Ga., October 15-19, under the presidency of Dr. Lewellys F. Barker, of Baltimore. Eighty-two renowned clinicians and teachers from all sections of the United States and Canada, and from several European countries have accepted places on the program. Dr. George W. Crile, Cleveland, Ohio, is chairman of the program committee, and Dr. William B. Peck, of Freeport, Ill., managing director. Dr. John B. Deaver, Philadelphia, is president-elect of the Association.

All medical men in good standing are privileged to register and are cordially invited to attend. A registration fee of $5.00 is charged.

Dr. E. Chambers Laird,

Boydton, Va., is medical director at Buffalo Lithia Springs, Va., for the summer months. He will return to his home about the middle of September.

Dr. J. Conway Hiden,

An alumnus of the University of Virginia, Department of Medicine, recently of Burdine, Kentucky, is now located at Pungoteague, Va., his former home.

Dr. Gladys Smithwick,

Recently at the American Hospital, Chicago, Ill., is now at Oakdale, Iowa. Dr. Smithwick is an alumnus of the Medical College of Virginia.

Health and Child Welfare Work in Cuba.

As a part of Cuba's official anti-tuberculosis campaign $3,000,000 has been appropriated for the construction of tuberculosis sanitariums. Preventoriums for children whose poor physical condition predisposes them to the disease will also be established. Plans have been made for the compulsory reporting of cases by physicians, the extension of the visiting-nurse system, the keeping of accurate statistics of cases, and the education of the public through motion pictures, lectures and literature.

Cuba is planning also for a National child-welfare congress, to be held next December, to continue for Cuba the work of the Pan-American Child Congress held in Habana last December. The committee in charge is under the chairmanship of the Secretary of Health. The five sections proposed are hygiene, medicine, psychology and education, sociology and legislation, and care for defective and delinquent children.

American Proctologic Society.

At the meeting of this society in Rochester and Minneapolis, Minn., recently, Dr. Edward G. Martin, of Detroit, Mich., was elected president, and Dr. Walter A. Fansler, Minneapolis, secretary.

Going Abroad to Study.

Drs. George A. Noland, of Ashburn, Va., and W. O. Bailey, of Leesburg, Va., will sail on the "President Harding", October the 3rd, for a visit to clinics in Berlin, Vienna, and Budapest. While abroad, Dr. Noland will take up post-graduate work in diseases of children and internal medicine, and Dr. Bailey will devote his time to the study of the eye.

A Survey of Minnesota's Crippled Children.

A state-wide survey to locate all the crippled children in Minnesota is being planned by the Minnesota Association for Crippled Children. Since 1916 there have been three

epidemics of infantile paralysis in the State, each affecting from 700 to 900 children and leaving many cripples. A Minnesota law provides State aid to the extent of $250 annually for the education of each crippled child discharged from the hospitals but unable to attend the regular schools. The Michael Dowling School in Minneapolis, operating under this law, receives more than 100 pupils from Hennepin County; it is equipped with special apparatus for treatment of cripples, and the same educational training is given as that provided for physically normal children.

Dr. H. H. Young Honored.

Dr. Hugh Hampton Young, of Johns Hopkins University, Baltimore, on the first of August was made an honorary fellow of the Royal College of Surgeons of Ireland. Dr. Young sailed the latter part of June for a visit to Europe and to attend this ceremony. He is an alumnus of the University of Virginia and has many friends in this State.

Dr. Everett S. Barr,

An alumnus of the Medical College of Virginia and for the past few years medical director of the Philadelphia Hospital for Mental Diseases, an institution of over 4,000 beds, has tendered his resignation to accept the position as executive physician of the University of Pennsylvania Graduate School of Medicine, and will be in executive charge over the clinical work of the hospital after September 1st.

New Recreation Pier for Brooklyn.

Remembrance Pier, a new recreation pier named in honor of Gold Star mothers, has recently been opened by Brooklyn. Its deck, 600 by 55 feet, is completely fenced, and one-third of the length is roofed. There will be playground equipment and a director of play, and music and dancing in the evening.

Increase in Divorce Since 1887.

The U. S. Bureau of the Census reports that the divorce rate per 1,000 of the population in 1926 was three times as great as it was in 1887, the year when the census began to compile records on the subject. Minor children were reported in more than one-third of the 1926 divorce cases, the total number affected being 116,378. The increase in the number of divorces for every 100 marriages during the same period was from 5.5 in 1887 to 15 in 1926.

Dr. George F. Simpson,

Purcellville, Va., has just been elected first vice-president of the Loudoun Hospital, at Leesburg, Va.

Members of Committees.

Drs. R. H. Wooliing and D. S. Divers, Pulaski, Va., have been elected members of the tournament and membership committees, respectively, of the Pulaski Country Club.

A Few Summer Vacationists.

In addition to the large number of doctors all over the State who have been taking week end vacations, and going on short trips made possible by the improved roads and automobiles, the following are noted as having been on special trips:

Dr. George A. Torrence, of Hot Springs, Va., sailed July 27th for a tour of observation of the German spas and health resorts. He will return September the 15th.

Dr. and Mrs. A. L. Tynes returned to their home in Staunton, Va., early in July, after a visit in Cambridge and Boston, Mass., and in New York. Dr. Tynes attended a number of clinics in these cities.

Dr. Thelma F. Brumfield, University, Va., has been spending some time in New York City. She will return about the middle of August.

Dr. and Mrs. Chas. B. Fox and children, of Monterey, Va., spent a vacation of a month in Albemarle County, Va., the doctor's native home.

Dr. and Mrs. Beverley F. Eckles, Richmond, spent their vacation in Atlantic City.

Dr. and Mrs. J. Allison Hodges, Richmond, left early in August for a visit at their summer home, "Drowsy Waters," Montreat, N. C.

Dr. and Mrs. J. Weldon Smith, Farmville, Va., are home again after a visit to Virginia Beach.

Dr. Reid White and daughter returned to their home in Lexington, Va., the middle of July, after visiting at Cape May, N. J.

Dr. and Mrs. Andrew D. Parson and daughter, Alice Frances, of Raven, Va., returned home the middle of July from a motor trip in Virginia, Kentucky and West Virginia.

Dr. and Mrs. J. E. Wine and son of Harrisonburg, Va., are home again after a visit to relatives at Wrightsville Beach and Wilmington, N. C.

Dr. and Mrs. F. D. Willis, of Newport News, Va., took a motor trip to Lancaster County, Va., where they visited friends.

Dr. and Mrs. Robert Whitehead, Richmond, Va., were recent visitors in Amherst, Va.

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Dr. and Mrs. Kenneth Bradford, Staunton, Va., spent sometime the latter part of July at the new Monterey, Va., hotel.

Dr. and Mrs. Thomas F. Gill and sons have returned to their home in Richmond, after a visit to Colonial Beach, Va.

Dr. and Mrs. D. Lane Elder and young children of Hopewell, Va., have been visiting Mrs. Elder's mother at Bassetts, Va.

Dr. and Mrs. Thos. S. Richardson returned to their home in Waynesboro, Va., early in July, after a visit to relatives in Toronto, Canada.

Dr. B. B. Bagby, formerly with the Richmond City health department, but now health officer of Athens and Clarke County, Ga., has been visiting friends in Richmond and West Point, Va.

Dr. Charles H. Peterson returned to his home at University, Va., early in July, after a motor trip through the North and a visit to his former home at Monterey, Va.

Dr. Beverley R. Tucker and family, Richmond, Va., are spending some time at Mountain Lake, Va.

Dr. St. Geo. T. Grinnan and daughter, Richmond, are also at Mountain Lake.

New Facilities for the Study of Children's Diseases.

The Babies Hospital of the City of New York is soon to become a part of the Medical Center, where it will assume the responsibility for medical work for all the child patients. It is expected that the new building will be completed by February, 1929, with beds for 30 private and 160 ward and semi-private patients.

Yale University has recently received a gift of $1,000,000 to be known as the Raleigh Fitkin Memorial Fund, which is to be used for the study of children's diseases and child life. A suitable building is to be erected, and the remainder of the money will be set aside as a permanent endowment fund.

Fire at Hospital.

The administration building of the Central Tennessee State Hospital for Insane, eight miles from Nashville, was totally destroyed by fire in the early morning of July the 27th. None of the 1,272 patients was hurt but several strayed off when turned out of the buildings into the spacious grounds.

Gill Memorial Eye, Ear and Throat Hospital, Roanoke, Va.

The annual report of this hospital, of which Dr. E. G. Gill is Chief of Staff, shows that from July 1, 1927 to July 1, 1928, there were 578 operative admissions, and 11,131 examinations and treatments by members of the staff.

This hospital, a modern and strictly fireproof structure, is designed and equipped for the medical and surgical treatment of diseases of the head, and of the air and food passages, as well as of the eye, ear, nose and throat. Resident physician lives in the hospital, and only graduate nurses are employed. Plans are being formulated for the erection of an additional floor to the present building. This is made necessary by the increase in the volume of work.

A Post-Graduate Clinic was held from March 19th to 24th, at which twelve prominent specialists in these branches delivered lectures and demonstrated operations to twenty-one attending physicians.

The American Electrotherapeutic Association

Will hold its annual meeting at Hotel Statler, Boston, September 10-14, under the presidency of Dr. Charles F. Stokes, of New York City. Information about this meeting may be obtained from the secretary, Dr. Richard Kovacs, 223 East Sixty-eighth Street, New York, N. Y.

Remington Medal Award.

Prof. Charles H. LaWall, Dean of the Philadelphia College of Pharmacy and Science, was awarded the Remington Medal for 1928 on the merits of his book "Four Thousand Years of Pharmacy." This award is granted by a jury of the living ex-presidents of the American Pharmaceutical Association, seventeen in number.

The American Roentgen Ray Society

Is to hold its annual meeting in Kansas City, Mo., September 25-28, and an elaborate program is being arranged for this occasion. Dr. A. H. Pirie, Montreal, Canada, is president, and Dr. John T. Murphy, Toledo, Ohio, secretary.

Tokyo Studies the Motion-Picture Problem.

A recent questioning of more than 16,000 school children in Tokyo as to their favorite motion-picture subjects showed that love affairs and fights are most popular. The municipality has now arranged with the motion-picture houses to put on pictures especially appropriate for children at one performance a week. The Ministry of Education is planning to establish a film library to serve as a

distributing center of instructive and interesting films for children, and to rent the films to primary schools at cost. The Government has already endorsed 260 films as adapted to the use of educational organizations and schools.

Dr. A. L. Wilson,

Lynchburg, Va., has been elected a member of the executive committee of the Lynchburg Post, No. 16, of the American Legion, for the coming year.

Dr. Harry Hudnall Ware,

Of the class of '24, Medical College of Virginia, has returned to Richmond, and is now associated with the department of obstetrics at tSuart Circle Hospital, this city, and will limit his practice to that branch. Since leaving Richmond, Dr. Ware has interned at the New York Lying-In and Jersey City Hospitals.

Dr. E. J. Nixon,

Petersburg, Va., has been elected president of the Petersburg Post of the American Legion, for the ensuing year.

Southern Medical Association.

Asheville, N. C., doctors are arranging for the meeting of the Southern Medical Association in their city, November 12-15, and count on a large attendance. Apart from the interest in the meeting, the beauty of Asheville and the surrounding country is such that those who have not visited that country should take advantage of this occasion to see this beauty spot of America. Dr. William R. Bathurst, Little Rock, Ark. is president. Mr. C. P. Loranz, secretary-manager of the Association, Birmingham, Ala., will gladly send folder about the meeting to any one applying for same.

Dr. A. M. Showalter

Has been elected president of the Rotary Club of Cambria, Va., for the current year.

"Acres for Classrooms".

The unique experiment of having each child assigned an acre of the home farm for cultivation is being tried by the Penn School, which works among the agricultural Negroes of St. Helena Island, off the South Carolina coast. Most of the parents have given willing cooperation. Records of progress are kept at the school and prizes are offered for the best crops and the best progress from year to year.

Dr. Joseph T. McCastor,

Of the class of '27, Medical College of Virginia, after several weeks in New York City, has located at Thomas, W. Va., where he is associated with Dr. Joseph L. Miller.

Civil Service Examinations.

The U. S. Civil Service Commission announces the following competitive examinations, applications to be on file with the Commission in Washington, D. C., by dates named:

For cytologist and for senior toxicologist, not later than September 5;

For physiotherapy aide and physiotherapy pupil aide, not later than August 21, October 9, and November 27;

For graduate nurse, graduate nurse (visiting duty), and graduate nurse (junior grade); for dietitian and student dietitian; for junior medical officer (interne); and for senior medical officer, medical officer, associate medical officer, and assistant medical officer, applications for all of which must be on file with the Commission not later than December 29, 1928.

Dr. H. J. Langston,

Danville, Va., is now in Buffalo, N. Y., where he is taking up special work in obstetrics under Dr. Irving W. Potter. Mrs. Langston accompanied her husband to Buffalo.

Dr. R. L. Page,

Batesville, Va., was presented a watch on August the 1st, by the King Solomon's Lodge, No. 194, A. F. and A. M.

Birth Certificates for Young Workers.

Alabama, since October, 1927, has required that an effort be made to obtain birth certificates before issuing work certificates to children between 14 and 16. Birth certificates were found for less than half the applicants during a three-month period. Among those for whom birth certificates were found none proved to be older than the age claimed, but almost a fourth of them were younger.

Maternal Mortality Decrease in Rural New York.

In rural New York there was a decrease of 26 per cent in the maternal mortality rate for the period 1921-1925 from the rate for 1915-1920. This decrease is considered as possibly due to the increased use of hospitals for confinement purposes by rural mothers.

The Families of Kentucky's Prisoners.

The unfortunate conditions recently found by the United States Children's Bureau in many of the families of 210 male prisoners of Kentucky indicate the need of a prison labor system giving employment to all able-bodied inmates at a reasonable wage, and of compul-

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sory regular contributions to their families of a portion of their earnings. Organization of county child-welfare work and "mothers' pensions" were also shown to be needed. A law authorizing such pensions was passed early in 1928 by the State legislature.

For Sale—

The following equipment of the late Dr. E. H. Heaton: Large Fisher cabinet—latest type machine—and galvanic battery outfit. Everything in perfect condition, having been used only one year. Will sell for half price. Address Mrs. E. H. Heaton, Leesburg, Va. (Adv.)

Obituary Record

Dr. Julian R. Beckwith,

Petersburg, Va., died at his country home in Prince George County, July the 28th, after having been in bad health for several months. Dr. Beckwith was 55 years of age and had graduated in medicine at the University of Virginia in 1899. Shortly thereafter he located in Petersburg and had been actively engaged in practice there until his last illness. He was a member of his local and the State Medical Society. His wife and five children survive him.

Dr. Louis Leake Putney,

For ten years a member of the staff of the Western State Hospital, Staunton, Va., committed suicide by hanging himself from a rafter in the basement of his home, July the 26th. Although in apparently good spirits, it is stated that he had been somewhat depressed over his health recently. Dr. Putney was a native of Prince Edward County, Virginia, and thirty-eight years of age. He studied medicine at the Medical College of Virginia, from which he graduated in 1914. He had been a member of the Medical Society of Virginia for a number of years. His wife and a brother, Dr. Charles W. Putney, of Staunton, survive him.

Dr. Clarence C. Jones,

Staunton, Va., died in that city, July the 10th, at the age of fifty-three years. He had been in bad health for some time. He obtained his diploma in medicine from the Baltimore Medical College in 1903 and had practiced most of the time since in Staunton. He had been for some years a member of the Medical Society of Virginia. His wife and three children survive him.

Dr. Hunter McGuire Brumback

Died July the 27th, at his home near Boyce, Va., after an illness of several weeks. He was a son of the late Dr. I. M. Brumback and was fifty-three years of age. Dr. Brumback studied medicine at the former University College of Medicine, Richmond, from which he graduated in 1900. He had been a member of the Medical Society of Virginia for a number of years. His wife and three children survive him.

Dr. Presley Marion Rixey,

Rear admiral in the U. S. Navy, retired, died at his home Rosslyn, Va., June 17th, aged seventy-five years. Death was due to myocarditis. He was graduated in medicine from the University of Viirginia in 1873 and entered the navy as an assistant surgeon the following year.

Dr. Duff Green Lewis,

Washington, D. C., died at Garfield Hospital, that city, June the 17th, aged fifty-eight years. He was a native of Virginia and graduated in medicine from the University of Virginia in 1891. He was formerly clinical associate in surgery at the George Washington University Medical School, Washington.

Resolutions on Death of Dr. F. W. Lewis.

The following resolutions were adopted by the Northern Neck Medical Society, at a recent meeting, on the death of Dr. Frank Waring Lewis:

WHEREAS, Our Heavenly Father has seen fit to call our dear friend and close companion, Dr. Frank Waring Lewis, to his final reward, it seems meet and proper that we who knew and loved him best should give expression to our sorrow.

THEREFORE, BE IT RESOLVED, That we, the members of the Northern Neck Medical Society have sustained a personal loss, the Society one of its charter members and a former president who showed unfailing courtesy and kindness as a presiding officer.

As a companion, he was genial, warm-hearted and lovable, firm in his stand for the things he thought to be right, a beloved physician, skilled in his profession and loyal to its members. In his death the County of Lancaster and State of Virginia have lost a good and useful citizen; the medical profession a physician of the highest type, and his family a loving father and a tender and affectionate husband.

RESOLVED FURTHER, That a copy of these resolutions be spread upon our minutes, published in the VIRGINIA MEDICAL MONTHLY and the local papers, and a copy be sent the family.

B. A. MIDDLETON,
M. C. OLDHAM,
C. T. PEIRCE.
Committee.